



RINA

VALIDATION REPORT


Final


“Tadas wind farm in Karnataka”
in
India

Report N°2012-IQ-50- MD

Revision N°1.2

VALIDATION REPORT

Project Title: Tadas wind farm in Karnataka		Country: India	Estimated CERs (tCO₂e): 181,436	
Client: Tadas Wind Energy Limited		Client contact: Mr. Anand Nair		
Report No.: 2012-IQ-50-MD		Revision: 1.2	Date of this report: 20/12/2012	
Approved by (Final Report – Decision Maker):  Roberto Cavanna			Date of approval: 21/12/2012	
Methodology				
Number: ACM0002	Version: 13.0.0 of 11/05/2012	Title: Consolidated baseline methodology for grid-connected electricity generation from renewable sources	Scale Large	SS(s): 01
<p>RINA Services S.p.A. (RINA), commissioned by Tadas Wind Energy Limited, has performed the validation of the project activity “Tadas wind farm in Karnataka” in India, with regard to the relevant requirements for CDM activities.</p> <p>In conclusion, it is RINA’s opinion that the project activity “Tadas wind farm in Karnataka”, in India, as described in the PDD version 02 dated 23/11/2012, meets all the relevant requirements for CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology ACM0002, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 13 of 11/05/2012.</p> <p>Hence RINA requests the registration of the project as a CDM project activity.</p>				

Work carried out by: Reghu Kumar Raghavan Nair Champok Buragohain Vijay Mathew Karthika Varma	<input checked="" type="checkbox"/> No distribution without permission from the Client or organizational unit responsible <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution
Work verified by (Final Report – AO Authorized officer signing for the DOE)  Laura Severino	Keywords: Climate Change, Kyoto Protocol, Clean Development Mechanism, Validation



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Abbreviations

BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction(s)
CERC	Central Electricity Regulatory Commission
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
DP	Double Pole
EB	Executive Board
EIA	Environmental Impact assessment
ER	Emission Reductions
FAR	Forward Action Request
GBI	Generation Base Incentive
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IREDA	Indian Renewable Energy Development Agency
KERC	Karnataka Electricity Regulatory Commission
LoA	Letter of Approval
MAT	Minimum Alternate Tax
MOC	Modalities of Communication Statement
MoEF	Ministry of Environment & Forest
MoU	Memorandum of Understanding
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NCDMA	National CDM Authority
NGO	Non-governmental Organization
ODA	Official Development Assistance
PAN	Permanent Account Number
PDD	Project Design Document



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PE	Project Emission
PIM	Project Information Memorandum
PLF	Plant Load Factor
PP(s)	Project Participant(s)
PPA	Power Purchase Agreement
PS	Project standard
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
SSC	Small Scale
TWEL	Tadas Wind Energy Limited
UNFCCC	United Nations Framework Convention on Climate Change
WEC	Wind Energy Convertors
WEG	Wind Energy Generator

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1 INTRODUCTION

Tadas Wind Energy Limited has commissioned RINA to carry out the validation of the “Tadas wind farm in Karnataka” project in India.

This report summarizes the findings of the validation of the project, performed on the basis of UNFCCC criteria for CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the Validation is to have an independent evaluation of a project activity by a designated operational entity against the requirements of the CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the project design document. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

1.2 Scope

The validation scope is to review the PDD against the UNFCCC criteria for CDM.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

2 METHODOLOGY

Validation was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The validation consisted of the following three phases:

- Document review;
- Follow-up actions;
- The resolution of outstanding issues and the issuance of the final validation report.

The following sections outline each step in more detail.

2.1 Document Review

The PDD, version 02 of 23/11/2012, version 01 of 15/06/2012/**01/**, in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan, the emission reduction calculations provided in the form of a spreadsheet version 02 (Final ER_Tadas_revise_23112012) submitted on 23/11/2012, version 01 (ER Tadas 100 MW Nov 3) submitted on 07/11/2012/**03/**, Financial analysis spreadsheet version 02 (Fin model_20112012_revise) submitted on 05/10/2012, version 01(1.Investment Analysis Worksheet) submitted on 15/10/2012/**02/**, Benchmark worksheet (4. Benchmark sheet) version 01 submitted on 15/10/2012/**02/** were assessed as part of the validation.

The following table lists the documentation that was reviewed during the validation.

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/01/	Tadas Wind Energy Limited: CDM-PDD for project activity "Tadas wind farm in Karnataka" in India, version 02 of 23/11/2012; version 01 of 15/06/2012.
/02/	Tadas Wind Energy Limited: Financial analysis spreadsheet (Investment Analysis Worksheet) version 01 submitted on 15/10/2012; version 02 (Fin model_20112012_revise) submitted on 05/10/2012 and Benchmark worksheet (4. Benchmark sheet) version 01 submitted on 15/10/2012
/03/	Tadas Wind Energy Limited: Emission Reduction spreadsheet (ER Tadas 100 MW Nov 3) version 01 submitted on 07/11/2012; version 02 (Final ER_Tadas_revise_23112012) submitted on 23/11/2012.
/04/	CDM Executive Board: Clean Development Mechanism Project Cycle Procedure, version 02.0, Annex 64, EB66 of 02/03/2012
/05/	CDM Executive Board: Clean Development Mechanism Project Standard, version 01.0, Annex 5, EB65 of 25/11/2011
/06/	CDM Executive Board: Clean Development Mechanism Validation and Verification Standard, version 02.0, Annex 4, EB65 of 25/11/2011
/07/	CDM Executive Board: Baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 13.0.0 of 11/05/2012
/08/	CDM Executive Board: "Guidelines for completing the project design document form" version 01.0 dated 02/03/2012, Annex 8 of EB 66.
/09/	CDM Executive Board: Methodological "tool for the demonstration and assessment of additionality", version 06.1.0 dated 13/09/2012, Annex 20 of EB 69
/10/	CDM Executive Board: Methodological "tool to calculate the emission factor for an electricity system", version 02.2.1 dated 29/09/2011, Annex 19 of EB 63
/11/	CDM Executive Board: Glossary of CDM terms, version 06.0, Annex 63, EB 66 dated 02/03/2012
/12/	UNFCCC: Status of ratification of the Kyoto Protocol, website " http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php " in English language retrieved on 07/09/2012
/13/	UNFCCC: Website indicating the list of DNAs " http://cdm.unfccc.int/DNA/index.html " in English language retrieved on 07/09/2012
/14/	CDM-Executive Board: Project Design Document Form for CDM Project Activities (F-CDM-PDD) version 04.0, dated 13/03/2012 and version 04.1 dated 11/04/2012
/15/	Central Electricity Authority (CEA): CO ₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012.
/16/	CDM-Executive Board: Modalities of communication statement (F-CDM-MOC), version 02.1 dated 16/03/2012
/17/	CDM Executive Board: "Guidelines on the assessment of investment analysis", version 05, annex 5, EB 62 dated 15/07/2011
/18/	UNFCCC: Prior consideration of the CDM website " http://cdm.unfccc.int/Projects/PriorCDM/notifications/index.html " in English language retrieved on 02/07/2012
/19/	CDM Executive Board: "Guidelines for the reporting and validation of plant load factors" version 01 annex 11 of EB 48 dated 17/07/ 2009.
/20/	Ministry of Environment & Forest (MoEF); Notification under Environment (Protection) Rules, 1986, dated 01/12/2009
/21/	National CDM Authority, Ministry of Environment and Forests (Govt. of India): Host country approval process website " http://www.cdmindia.gov.in/detail_news.php?id=3 " in English language retrieved on 07/09/2012.
/22/	CDM Executive Board: "Procedures for Modalities of Communication between Project Participants and the Executive Board", Annex-59, EB45 Report dated 13/02/2009

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/23/	Tadas Wind Energy Limited : Request for validation assessment of a greenhouse gases project activity proposed to RINA dated 31/05/2012
/24/	Tadas Wind Energy Limited: Certified true copy of resolution passed at the meeting of the Board of Directors of Tadas Wind Energy Private Limited held on 27/07/2011, dated 24/11/2011.
/25/	Tadas Wind Energy Limited: Copy of e-mail sent to UNFCCC and NCDMA for prior CDM consideration dated 23/01/2012
/26/	UNFCCC: Copy of e-mail acknowledgement received from UNFCCC dated 23/01/2012
/27/	Enercon (India) Limited: Offer to Tadas Wind Energy Limited for wind energy project in the state of Karnataka dated 01/07/2011
/28/	Tadas Wind Energy Limited: Purchase order to Enercon (India) Limited, for the supply of 125 numbers of E-53, 800 kW WEC, Towers, Transformers and DP structures at Tadas in Karnataka, dated 27/07/2011
/29/	KERC: Karnataka Electricity Regulatory Commission, Bangalore tariff order dated 11/12/2009.
/30/	Entura Hydro Tasmania: Tadas Wind Farm – Energy Estimate dated 11/06/2011
/31/	Guidelines on the demonstration and assessment of prior consideration of the CDM, version 04 dated 15/06/2011
/32/	Power Purchase Agreement Signed between Hubli Electricity Supply Company Limited and Tadas Wind Energy Limited on 29/03/2012.
/33/	Tadas Wind Energy Limited: Public Notice sent to local stakeholders for the stakeholder meeting dated 05/06/2012
/34/	Tadas Wind Energy Limited: The copy of newspaper advertisement for inviting local stakeholders to attend stakeholders meeting on 06/06/2012, published in nation newspaper name “Times of India”, dated 24/05/2012
/35/	Tadas Wind Energy Limited: The copy of newspaper advertisement for inviting local stakeholders to attend stakeholders meeting on 06/06/2012, published in local newspaper, published in newspaper “Karnataka Daily”, dated 24/05/2012
/36/	Tadas Wind Energy Limited: Minutes of the local stakeholder meeting, list of attendees and copies of photographs of the stakeholder meeting dated 06/06/2012.
/37/	Enercon India: Details of the land with Lat Long for 100 MW wind power project of TWEL at Tadas Site in the state of Karnataka, dated 27/06/2012.
/38/	Common Loan Agreement signed between Tadas Wind Energy Limited and Lenders (Canara Bank, Oriental Bank Of Commerce, Indian Renewable Energy Development Agency Ltd, Dena Bank, Central Bank Of India, State Bank Of Mysore, State Bank Of Patiala and Corporation Bank)dated 2 nd March, 2012.
/39/	Centre for wind energy technology: http://www.cwet.tn.nic.in/Docu/RLMM_Main_List_dated_31.07.2012.pdf The website was in English language and last retrieved on 14/11/2012
/40/	RINA Services S.p.A; Onsite visit interview sheet dated 25/10/2012
/41/	Commissioning certificates issued by Hubli Electricity Supply Company Limited for the project activity dated 03/05/2012, 04/05/2012, 26/05/2012, 28/05/2012, 23/06/2012, 07/08/2012, 27/09/2012, 28/09/2012 and 29/09/2012.
/42/	Benchmark calculation: Financial Management” 9th edition, by I.M. Pandey (page 211), Published by Vikas Publishing House Pvt Ltd, 2009
/43/	Government Order for the transfer of capacity in the favor of Tadas Wind Energy Ltd; Order No: EN 150 NCE 2012, Bangalore, dated: 02.05.2012 Order No: EN 148 NCE 2012,Bangalore, dated: 02.05.2012 Order No: EN 149 NCE 2012, Bangalore, dated: 02.05.2012 Order No: EN 147 NCE 2012, Bangalore, dated: 02.05.2012



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	Order No. EN 125 NCE 2012, Bangalore, Dated.29.03.2012 Order No: EN 124 NCE 2012, Bangalore, dated: 29.03.2012 Order No: EN 138 NCE 2012, Bangalore, Dated.29.03.2012
/44/	Tadas Wind Energy Limited: Insurance policy for the project activity from National Insurance Company Limited dated 10/05/2012
/45/	Evacuation approval for the project activity issued by Karnataka Power Transmission Corporation Limited dated 27/12/2011
/46/	Agreement of sale executed between land holders and Enercon (India) Limited dated 25/07/2011
/47/	Tadas Wind Energy Limited: Copy of Invoice raised for the month of July 2012 by the project proponent for the sale of electricity to Hubli Electricity Supply Company Limited dated 14/08/2012
/48/	Tadas Wind Energy Limited: Copy of Joint meter reading (Credit Note) issued by Hubli Electricity company for the month of July 2012 and August 2012 for the project activity
/49/	Web link for Tax Rate: http://www.oifc.in/Uploads/MediaTypes/Documents/Union_Budget_Analysis_2011-2012.pdf The website was in English language and last retrieved on 14/11/2012.
/50/	Ministry of Law and Justice, Govt. of India: The Electricity Act 2003 dated 23/05/2003
/51/	Ministry of Power, Govt. of India: National Electricity Policy dated 12/02/2005
/52/	Ministry of Power, Govt. of India: Tariff Policy dated 06/01/2006
/53/	Web link for Indian Company Act; http://www.docstoc.com/docs/54501925/DEPRECIATION-AS-PER-COMPANIES-ACT1956 The website was in English language and last retrieved on 25/10/2012.
/54/	Web link for Income Tax Act; http://law.incometaxindia.gov.in/DIT/File_opener.aspx?page=ITRU&schT=rul&csId=cdd81d5b-3f5d-4826-bb0c-dbf1c2e5ddb7&rNo=&sch=&title=Taxmann%20-%20Direct%20Tax%20Laws The website was in English language and last retrieved on 25/10/2012.
/55/	Ministry of Environment and Forests (MoEF): EIA Notification of 1994, or the Amended Notification of 2006; and Ministry of Environment & Forests, 2006, S.O. 1533 (E) Environmental Impact Assessment Notification – 2006, Schedule: List of project activities requiring prior environmental clearance, page 10 [online] Available at the following web link: http://moef.nic.in/legis/eia/so1533.pdf The website was in English language and last retrieved on 14/11/2012.
/56/	Tadas Wind Energy Limited : Host Country Approval from National CDM Authority, Ministry of Environment & Forest, Government of India to “Tadas wind farm in Karnataka” Ref. No. 4/15/2012-CCC dated 22/11/2012.
/57/	Modalities of communication statement signed by the PP dated 15/11/2012
/58/	SBI PLR: http://thebankingbible.com/historical-base-ratesbplrs-of-sbi-4503 The website was in English language and last retrieved on 04/12/2012
/59/	Reserve Bank of India: http://www.rbi.org.in/scripts/PublicationsView.aspx?id=13360

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	The website was in English language and last retrieved on 04/12/2012
/60/	<p>International Monetary Fund:</p> <p>http://www.imf.org/external/pubs/ft/weo/2011/01/weodata/weorept.aspx?pr.x=33&pr.y=8&sy=2011&ey=2016&scsm=1&ssd=1&sort=country&ds=.&br=1&c=534&s=PCPI%2CPCIPCH&grp=0&a=</p> <p>The website was in English language and last retrieved on 04/12/2012</p>
/61/	CERC: Copy of tariff order dated 09/11/2010
/62/	Memorandum of Understanding signed between the developer and the technology supplier dated 28/06/2010.
/63/	Tadas Wind Energy Limited: Project Information Memorandum for 100 MW wind farm in Karnataka, prepared by IL&FS Financial Services Limited, June, 2011; Submitted to RINA on 23/11/2012
/64/	<p>IREDA interest rate:</p> <p>http://www.ireda.gov.in/pdf/Annexure%20A%20(Interest%20Rate%20and%20etc.).pdf</p> <p>The website was in English language and last retrieved on 04/12/2012</p>
/65/	<p>Central Electricity Regulatory Commission Order dated 18/04/2011 on Renewable energy certificate:</p> <p>http://nldc.in/docs/REC/Amendment_to_Detailed_Procedure_18-04-2011.pdf</p> <p>The website was in English language and last retrieved on 04/12/2012</p>
/66/	IREDA: operational guidelines for Implementation of "Generation Based Incentive" for Grid Connected Wind Power Projects by Indian Renewable Energy Development Agency Ltd. (IREDA) - To be read with the Scheme for implementation of GBI issued by MNRE dated 17.12.2009
/67/	Identity proof of the authorized primary signatory (passport and PAN card) for the project proponent.
/68/	Central Electricity Authority; Notification for regulating the installation and operation of meters dated 17/03/2006, website http://www.cea.nic.in/reports/regulation/meter_reg.pdf in English language retrieved on 02/11/2012.
/69/	A.Pandya & Company, Chartered Accountants: Certificate on the project cost incurred for the project "Tadas wind farm in Karnataka" executed by Tadas Wind Energy Limited dated 13/12/2012.
/70/	CDM Executive Board: Methodological "tool to determine the remaining lifetime of equipment", version 1.0 dated 16/10/2009, Annex 15 of EB 50
/71/	<p>Web link for Indian Company Act;</p> <p>http://www.docstoc.com/docs/54501925/DEPRECIATION-AS-PER-COMPANIES-ACT1956</p> <p>The website is in English language and last retrieved on 19/12/2012</p>
/72/	<p>a) Clarifications on the treatment of national and/or sectoral policies and regulations (paragraph 45 (e) of the CDM Modalities and Procedures) in determining a baseline scenario, Annex 3 of EB 16 report.</p> <p>b) Clarifications on the consideration of national and/or Sectoral policies and circumstances in baseline scenarios (version 02), Annex 3 of EB 22 report.</p>

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/73/	Operation & Maintenance agreement signed by the developer with Enercon (India) Limited for wind power project in Rajasthan, dated 22/11/2010.
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2.2 Follow-up actions

On 25/10/2012, RINA visited Tadas wind farm site, Haveri and Dharwad district of Karnataka to resolve questions and issues identified during the document review and to perform interviews with relevant stakeholders in the host country.

The key personnel interviewed and the main topics of the interviews are summarized in the table below.

	Date	Name and Role	Organization	Topic
/a/	25/10/2012	Mr. Ashwini. K. Thakur (Assistant Vice President)	Tadas Wind Energy Limited	Project Description, CDM consideration, Baseline identification, Project Boundary. project financing, Additionality, Baseline Calculation, Environmental impacts, Sustainable Development etc.
/b/	25/10/2012	Mr. Rajesh. H (Assistant Engineer)	Enercon (India) Limited.	Regulatory requirements, project status, Monitoring procedures & Calibration of meters, Operation and Maintenance, Data recording, Emergency procedures, etc.
/c/		Mr. Sudhanshu (Assistant Engineer)		
/d/	25/10/2012	Mr. M.G. Puja (Supervisor)	Enercon (India) Limited.	Monitoring procedures & Calibration of meters, Operation and Maintenance, Data recording, Emergency procedures, etc.
/e/		Mr Hemachandra (Sr. Engineer)		
/f/	25/10/2012	Mr. Bagyarayja Local Stakeholder,	Heribindigiri village	Mode of Invitation for stakeholders meeting, Stakeholders meeting consultation, advantages and disadvantages of the project, employment generation, Environmental impacts, Sustainable Development , etc.
/g/		Mr. Aslam Local Stakeholder,	Local Stakeholder, Bankapur village	
/h/		Mr. Ramu Local Stakeholder,	Local Stakeholder, Ingalagi village	
/i/		Mr. Basappa Local Stakeholder,	Local Stakeholder, Thirtha Village	
/j/	25/10/2012	Mr. Harish. M Technician	Enercon (India) Limited.	Operation and Maintenance
/k/	25/10/2012	Mr. Umashankar .S Technician	Enercon (India) Limited.	Operation and Maintenance

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//	25/10/2012	Mr. Ningappa F.G Technician	Enercon Limited.	(India)	Operation and Maintenance
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2.3 Resolution of outstanding issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the project design.

To guarantee transparency a validation protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of validation and the results from validating the identified criteria. The validation protocol consists of four tables; the different columns in these tables are described in the figure below (see Figure 1). The completed validation protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.
- The CDM requirements have not been met.
- There is a risk that the emission reductions cannot be monitored or calculate.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration. CARs, CLs and FARs identified are included in the validation protocol in Appendix A of this report.

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Figure 1 Validation protocol tables

Validation Protocol, Table 1 - Mandatory requirement		
Requirement	Reference	Conclusion
The requirements the project must meet.	Makes reference to the documents where the answer to the requirement is found.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) if a requirement is not met. A request for clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol, Table 2 - Requirement checklist				
Checklist Question	Ref.	MoV	Comments	Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in five different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR, CL and FAR see the definitions above. OK is used if the information and evidence provided is adequate to demonstrate compliance with CDM requirements.

Validation Protocol, Table 3 - Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
The CAR and/or CLs raised in table 2 are repeated here.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants to address the CARs and/or CLs.	The validation team's assessment and final conclusion of the CARs and/or CLs.

Validation Protocol, Table 4 - Forward Action Requests (if no FAR the table 4 is deleted)		
Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
The FAR raised in table 2 is repeated here.	Reference to the checklist question number in Table 2 where the FAR is explained.	Response by the project participants on how forward action request will be addressed prior to first verification.

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2.4 Internal quality control

All the revisions of the validation report before being submitted to the client were subjected to an independent internal technical review to confirm that all validation activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

2.5 Validation team and the technical reviewer(s)

The validation team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Country
Team Leader CDM	Raghavan Nair	Reghu Kumar	India
CDM Validator	Buragohain	Champok	India
Technical expert CDM, under evaluation	Mathew	Vijay	India
Financial Expert	Varma	Karthika	India
Technical Reviewer	Menon	Rekha	India
Technical Reviewer	Valoroso	Rita	Italy
Technical Reviewer	Tong	Wing Yu	Hong Kong (China)

3 VALIDATION FINDINGS

The findings of the validation related to the project, as described in the PDD version 01 of 15/06/2012, version 02 of 23/11/2012 **/01/**, are stated in the following sections.

The validation requirements, the means of validation and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

3.1 Approval and Participation

The project participant is M/s. Tadas Wind Energy Limited and is a private entity; the project is a unilateral project and hence the host country (India) is the only Party involved in the proposed project activity. Host country India fulfils the requirements to participate in the CDM, having ratified the Kyoto Protocol on 26/08/2002 and establishing as DNA - Ministry of Environment and Forests as per the UNFCCC website **/12/13/**. The project participant is correctly listed in table A.4 of the PDD and the information is consistent with the contact details provided in Appendix 1 of the latest PDD **/01/**.

The DNA of India issued a Letter of Approval on 22/11/2012, approving participation of M/s. Tadas Wind Energy Limited as a project participant and confirming that the project assists in achieving sustainable development **/56/** in India. The Letter of Approval was received directly by the PP and refers to the precise project activity in the PDD **/01/**. RINA also confirmed that the LoA refers to the proposed CDM project activity and the title is in line with the title mentioned in the PDD i.e. "Tadas wind farm in Karnataka". The letter of approval does not refer to any specific version of the validation report. By checking the original LoA document **/56/** RINA considers the LoA in accordance with paragraphs 39-42 of the VVS version 2.0 **/06/** and hence RINA has no doubt on the authenticity of the LoA for the project activity.

The proposed project does not involve any public funding from an Annex I Party, and the validation did not reveal any information that indicated that the project could be seen as a diversion of official development assistance (ODA) funding towards the host country. The validation team has verified the common loan agreement signed for the project activity **/38/** and confirmed that no ODA has

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been received for this project activity. The project participant has submitted a third party certificate ensuring that ODA funds are not a part of the project investment.

Project participants	Tadas Wind Energy Limited
Parties involved	India
LoA received	Yes
Date of LoA	22/11/2012
LoA received from	Directly received from PP
Validation of authenticity	Checked with the original LoA document/56/.
Validity of LoA	Yes
Party is party to Kyoto Protocol	Yes
Voluntary participation	Yes
Project contribution to SD	Yes

3.2 Modalities of communication

As required in “Procedures for Modalities of Communication between Project Participants and the Executive Board”, Annex-59, EB45 Report/22/, the PP has submitted Modalities of Communication (MoC), dated on 15/11/2012/57/, the validation team has verified that the names of primary authorized signatory Mr Anand Nair who is authorized by Tadas Wind Energy Limited for future communication related to the corresponding scope of authority with UNFCCC. The validation team has verified the specimen signatures of the primary authorized signatory from the copy of Passport and PAN Card/67/.

The validation team can confirm that the PP has used the latest version of the MOC statement form/16/. The signatory and contact details on the MoC are consistent with the details provided in the appendix 1 of the PDD/01/ are authorized and credible and it fulfils the requirement of paragraph 59 and 60 of VVS version 2/06/ Participation Requirements.

3.3 Project design document

The PDD for the project activity “Tadas wind farm in Karnataka” version 02 dated 23/11/2012 and previous version 01 of 15/06/2012 /01/ submitted by Tadas Wind Energy Limited have been the basis for the validation process.

RINA thus confirms that the latest PDD/01/ is based on the currently valid PDD template/14/ and is completed in accordance with the applicable guidance document “Guidelines for completing the project design document form” (version 01.0), dated 02/03/2012 /08/.

The main changes between the PDD version 01 of 16/05/2012 published for GSC and the PDD version 02 of 23/11/2012 submitted for registration are the following:

Section of the PDD	Description and reason for changing the information in that section
A.1	The emission reduction estimates has been corrected.
A.1	The implementation status of the project activity has been updated in the final PDD.
B.2	Justification to the compliance of the applicability conditions for the tool

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	for the demonstration and assessment of additionality has been updated in the final PDD.
B.3	The project boundary has been defined in the final PDD.
B.3	The project boundary diagram has been revised in the final PDD.
B.4	The national policies relevant to the project activity has been described in the final PDD.
B.4	Data and parameters used to determine baseline scenario has been included in the final PDD.
B.5	PP has included the justification for choosing IMF inflation rate for determining the benchmark for the project activity in the final PDD.
B.5	PP has included the required variations of key parameters to reach the benchmark and justify likelihood of such occurrence in the final PDD.
B.6	The emission reduction estimates has been corrected.
B.7.1	The data and parameters to be monitored has been revised in the final PDD.
B.7.3	The calculation for the determination of monthly invoices has been included in the final PDD.
Appendix 5	Background information on monitoring plan has been included in the final PDD.
Appendix 8	Geo coordinates of WEGs has been updated in the final PDD.

3.4 Project Design

Purpose and general description of the project activity:

The purpose of the project activity is to generate electricity from wind energy and export to Southern grid which is assessed on the basis of Power Purchase Agreements signed between Tadas Wind Energy Limited & Hubli Electricity Supply Company Limited and Tadas Wind Energy Limited on 29/03/2012/**32/**. The Southern grid is a fossil fuel dominated grid, which is confirmed with the CEA database (the weighted average operating margin of the southern grid year 2008-09, 2009-10, 2010-11 is 0.9515 tCO₂/MWh)/**15/**. Therefore, the project activity results in emission reduction as it replaces equivalent amount of electricity from fossil fuel dominated Southern grid/**15/**.. The project is an initiative by Tadas Wind Energy Limited and involves 125 Wind Turbine Generators (WTGs) each with a capacity of 800 kW at Tadas wind site of Haveri & Dharwad district in Karnataka state. The total installed capacity of the proposed project activity is 100 MW which is confirmed from the purchase order placed by the PP to Enercon (India) Limited (technology supplier), for the supply of 125 numbers of E-53, 800 kW WEC, Towers, Transformers and DP structures/**28/** and from interview with the technology supplier at the WTG installation site.

Project location:

The project is located in Tadas wind site of Kundagol, Shiggaon and Savanur Tehsils of Haveri & Dharwad district in Karnataka. WTG wise location details are presented below:

S. No.	Location No.	District	State	Latitude (N)	Longitude (E)
1	47A	Haveri & Dharwad	Karnataka	15° 6' 42.271"	75° 9' 42.404"
2	31A	Haveri & Dharwad	Karnataka	15° 4' 53.479"	75° 10' 35.692"
3	32A	Haveri & Dharwad	Karnataka	15° 4' 59.339"	75° 10' 34.725"
4	38A	Haveri & Dharwad	Karnataka	15° 5' 25.359"	75° 10' 18.999"
5	33A	Haveri & Dharwad	Karnataka	15° 5' 5.234"	75 °10' 30.609"

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6	54A	Haveri & Dharwad	Karnataka	15°7' 35.458"	75°10' 26.644"
7	55A	Haveri & Dharwad	Karnataka	15°7' 12.958"	75°9' 53.552"
8	42B	Haveri & Dharwad	Karnataka	15°6' 4.870"	75°10' 26.470"
9	43B	Haveri & Dharwad	Karnataka	15°6' 12.683"	75°10' 25.973"
10	46N	Haveri & Dharwad	Karnataka	15°6' 35.330"	75°9' 53.489"
11	45C	Haveri & Dharwad	Karnataka	15°6' 21.197"	75°10' 0.515"
12	308C	Haveri & Dharwad	Karnataka	15°5' 19.113"	75°10' 14.404"
13	44	Haveri & Dharwad	Karnataka	15°6' 29.272"	75°9' 57.941"
14	37A	Haveri & Dharwad	Karnataka	15°5' 23.297"	75°10' 33.371"
15	467B	Haveri & Dharwad	Karnataka	15°6' 49.694"	75°9' 40.533"
16	468C	Haveri & Dharwad	Karnataka	15°6' 59.495"	75°9' 35.279"
17	693	Haveri & Dharwad	Karnataka	15°7' 52.646"	75°9' 40.982"
18	34C	Haveri & Dharwad	Karnataka	15°5' 16.036"	75°10' 37.118"
19	307F	Haveri & Dharwad	Karnataka	15°5' 10.091"	75°10' 21.299"
20	75A	Haveri & Dharwad	Karnataka	15°5' 37.976"	75°11' 15.935"
21	78N	Haveri & Dharwad	Karnataka	15°5' 11.806"	75°11' 15.577"
22	70N	Haveri & Dharwad	Karnataka	15°5' 59.924"	75°11' 5.031"
23	82N	Haveri & Dharwad	Karnataka	15°4' 43.774"	75°11' 21.750"
24	70B	Haveri & Dharwad	Karnataka	15°5' 52.957"	75°11' 6.365"
25	80N	Haveri & Dharwad	Karnataka	15°4' 57.385"	75°11' 15.832"
26	75B	Haveri & Dharwad	Karnataka	15°5' 32.795"	75°11' 23.067"
27	77	Haveri & Dharwad	Karnataka	15°5' 21.220"	75°11' 6.438"
28	79B	Haveri & Dharwad	Karnataka	15°5' 2.336"	75°11' 11.917"
29	511	Haveri & Dharwad	Karnataka	15°4' 44.863"	75°11' 42.422"
30	74B	Haveri & Dharwad	Karnataka	15°5' 45.627"	75°11' 13.630"
31	477C	Haveri & Dharwad	Karnataka	15°5' 33.859"	75°12' 11.918
32	306D	Haveri & Dharwad	Karnataka	15°5' 45.972"	75°12' 6.971
33	72A	Haveri & Dharwad	Karnataka	15°5' 49.194"	75°11' 30.453
34	76A	Haveri & Dharwad	Karnataka	15°5' 26.465"	75°11' 1.149
35	96A	Haveri & Dharwad	Karnataka	15°4' 56.983"	75°12' 7.192
36	493	Haveri & Dharwad	Karnataka	15°5' 27.845"	75°12' 3.134
37	302A	Haveri & Dharwad	Karnataka	15°4' 38.693"	75°11' 25.833
38	470B	Haveri & Dharwad	Karnataka	15°3' 57.171"	75°11' 49.012
39	517D	Haveri & Dharwad	Karnataka	15°5' 16.527"	75°11' 13.169
40	81C	Haveri & Dharwad	Karnataka	15°4' 50.907"	75°11' 17.200
41	16A	Haveri & Dharwad	Karnataka	15°2' 55.405"	75°10' 51.506
42	23A	Haveri & Dharwad	Karnataka	15°3' 49.456"	75°10' 30.011
43	15B	Haveri & Dharwad	Karnataka	15°3' 1.559"	75°10' 48.697
44	14A	Haveri & Dharwad	Karnataka	15°3' 8.292"	75°10' 55.637
45	13A	Haveri & Dharwad	Karnataka	15°3' 14.352"	75°10' 47.837
46	19A	Haveri & Dharwad	Karnataka	15°2' 31.927"	75°11' 2.373
47	501	Haveri & Dharwad	Karnataka	15°3' 26.008"	75°10' 43.961
48	215A	Haveri & Dharwad	Karnataka	15°2' 35.594"	75°11' 53.928
49	203A	Haveri & Dharwad	Karnataka	15°3' 34.885"	75°12' 48.387
50	217A	Haveri & Dharwad	Karnataka	15°2' 25.756"	75°12' 2.561
51	200B	Haveri & Dharwad	Karnataka	15°2' 16.981"	75°12' 58.324
52	212A	Haveri & Dharwad	Karnataka	15°3' 25.340"	75°12' 21.578

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53	778	Haveri & Dharwad	Karnataka	15°2' 17.256"	75°12' 7.913"
54	133A	Haveri & Dharwad	Karnataka	15°4' 25.595"	75°13' 26.529"
55	132A	Haveri & Dharwad	Karnataka	15°4' 36.404"	75°13' 24.195"
56	130B	Haveri & Dharwad	Karnataka	15°4' 45.139"	75°13' 12.344"
57	134B	Haveri & Dharwad	Karnataka	15°4' 44.457"	75°14' 15.429"
58	312B	Haveri & Dharwad	Karnataka	15°0' 3.565"	75°17' 14.426"
59	520A	Haveri & Dharwad	Karnataka	14°59' 52.182"	75°17' 6.809"
60	314B	Haveri & Dharwad	Karnataka	15°0' 17.446"	75°17' 28.745"
61	310A	Haveri & Dharwad	Karnataka	15°0' 33.239"	75°17' 49.766"
62	311B	Haveri & Dharwad	Karnataka	15°0' 39.164"	75°17' 48.736"
63	317D	Haveri & Dharwad	Karnataka	15°0' 48.524"	75°17' 35.452"
64	478B	Haveri & Dharwad	Karnataka	15°0' 58.789"	75°17' 25.787"
65	319A	Haveri & Dharwad	Karnataka	15°1' 3.971"	75°17' 20.870"
66	321A	Haveri & Dharwad	Karnataka	15°1' 10.907"	75°17' 18.904"
67	322A	Haveri & Dharwad	Karnataka	15°1' 24.147"	75°17' 25.587"
68	323B	Haveri & Dharwad	Karnataka	15°1' 31.632"	75°17' 26.468"
69	479A	Haveri & Dharwad	Karnataka	15°1' 17.842"	75°16' 51.917"
70	697	Haveri & Dharwad	Karnataka	14°59' 57.084"	75°17' 17.599"
71	330A	Haveri & Dharwad	Karnataka	15°1' 48.116"	75°16' 50.081"
72	331B	Haveri & Dharwad	Karnataka	15°1' 52.506"	75°16' 53.570"
73	480A	Haveri & Dharwad	Karnataka	15°1' 54.430"	75°17' 16.818"
74	332A	Haveri & Dharwad	Karnataka	15°2' 9.116"	75°16' 46.022"
75	481B	Haveri & Dharwad	Karnataka	15°2' 24.853"	75°16' 33.917"
76	334A	Haveri & Dharwad	Karnataka	15°2' 27.847"	75°17' 26.879"
77	335A	Haveri & Dharwad	Karnataka	15°2' 34.816"	75°17' 24.610"
78	336A	Haveri & Dharwad	Karnataka	15°2' 45.917"	75°17' 23.219"
79	337A	Haveri & Dharwad	Karnataka	15°2' 52.526"	75°17' 22.189"
80	351A	Haveri & Dharwad	Karnataka	15°2' 24.075"	75°16' 4.003"
81	350B	Haveri & Dharwad	Karnataka	15°2' 29.151"	75°16' 5.517"
82	349A	Haveri & Dharwad	Karnataka	15°2' 42.300"	75°16' 7.074"
83	329D	Haveri & Dharwad	Karnataka	15°1' 58.195"	75°16' 59.272"
84	482D	Haveri & Dharwad	Karnataka	15°3' 8.245"	75°16' 32.499"
85	346A	Haveri & Dharwad	Karnataka	15°3' 18.713"	75°16' 16.433"
86	333D	Haveri & Dharwad	Karnataka	15°2' 21.289"	75°16' 47.947"
87	483B	Haveri & Dharwad	Karnataka	15°3' 55.224"	75°16' 52.224"
88	342C	Haveri & Dharwad	Karnataka	15°3' 48.862"	75°17' 3.807"
89	343G	Haveri & Dharwad	Karnataka	15°3' 43.169"	75°17' 1.320"
90	344A	Haveri & Dharwad	Karnataka	15°3' 41.234"	75°17' 12.808"
91	341D	Haveri & Dharwad	Karnataka	15°3' 35.949"	75°17' 21.779"
92	340C	Haveri & Dharwad	Karnataka	15°3' 25.464"	75°17' 25.014"
93	595A	Haveri & Dharwad	Karnataka	15°3' 19.277"	75°17' 26.714"
94	798	Haveri & Dharwad	Karnataka	15°0' 10.258"	75°17' 24.214"
95	831	Haveri & Dharwad	Karnataka	15°0' 47.795"	75°17' 19.911"
96	62C	Haveri & Dharwad	Karnataka	15°6' 54.083"	75°11' 12.282"
97	489A	Haveri & Dharwad	Karnataka	15°6' 37.925"	75°12' 4.440"

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98	117A	Haveri & Dharwad	Karnataka	15°7' 10.778"	75°12' 30.909"
99	490A	Haveri & Dharwad	Karnataka	15°6' 24.471"	75°11' 39.330"
100	116N	Haveri & Dharwad	Karnataka	15°7' 23.426"	75°12' 45.465"
101	160A	Haveri & Dharwad	Karnataka	15°8' 35.738"	75°11' 12.572"
102	64B	Haveri & Dharwad	Karnataka	15°6' 35.498"	75°11' 10.255"
103	63B	Haveri & Dharwad	Karnataka	15°6' 46.826"	75°11' 9.562"
104	114C	Haveri & Dharwad	Karnataka	15°7' 59.169"	75°12' 42.987"
105	115C	Haveri & Dharwad	Karnataka	15°7' 50.216"	75°12' 44.754"
106	160C	Haveri & Dharwad	Karnataka	15°8' 26.344"	75°10' 56.042"
107	524	Haveri & Dharwad	Karnataka	15°8' 28.608"	75°11' 14.108"
108	61B	Haveri & Dharwad	Karnataka	15°7' 7.211"	75°10' 59.326"
109	548A	Haveri & Dharwad	Karnataka	15°8' 0.857"	75°11' 35.899"
110	492C	Haveri & Dharwad	Karnataka	15°5' 54.599"	75°12' 5.773"
111	491B	Haveri & Dharwad	Karnataka	15°6' 25.235"	75°11' 59.469"
112	154	Haveri & Dharwad	Karnataka	15°7' 30.894"	75°9' 52.728"
113	836	Haveri & Dharwad	Karnataka	15°6' 0.686"	75°10' 48.848"
114	690A	Haveri & Dharwad	Karnataka	15°7' 13.847"	75°9' 39.646"
115	841B	Haveri & Dharwad	Karnataka	15°7' 46.647"	75°9' 55.086"
116	471	Haveri & Dharwad	Karnataka	15°8' 1.779"	75°10' 1.163"
117	178N	Haveri & Dharwad	Karnataka	15°5' 26.602"	75°14' 22.981"
118	179N	Haveri & Dharwad	Karnataka	15°3' 0.815"	70°50' 29.829"
119	180N	Haveri & Dharwad	Karnataka	15°5' 9.122"	75°14' 23.162"
120	181B	Haveri & Dharwad	Karnataka	15°4' 59.818"	75°14' 18.026"
121	318	Haveri & Dharwad	Karnataka	15°2' 38.797"	75°15' 56.485"
122	65C	Haveri & Dharwad	Karnataka	15°6' 36.356"	75°10' 55.948"
123	549B	Haveri & Dharwad	Karnataka	15°6' 27.846"	75°11' 12.896"
124	66A	Haveri & Dharwad	Karnataka	15°6' 10.891"	75°11' 8.492"
125	469D	Haveri & Dharwad	Karnataka	15°6' 10.307"	75°11' 44.846"

At the time of the site visit, all the WTGs were commissioned and therefore the geographic coordinates were confirmed during the site visit. The other details such as village name, taluka name and district name of WTGs are checked with the commissioning certificates issued by Hubli Electricity supply Company Limited for the WTGs of the project activity and were found appropriate **/41/**.

Scenario existing prior to the implementation of the project activity:

In the absence of the project activity the equivalent amount of power would have been generated in the fossil fuel dominated Southern grid. This is evident from the electricity generation scenario of the host country that the Southern grid is dominated by fossil fuel based power plants **/15/**. Hence, it is confirmed that electricity equivalent to the project activity would have been generated in Southern grid of other power plants added to the Southern grid.

Technology(ies) employed:

The project activity involves the implementation of 125 wind energy converters (WECs) of E-53 make 800 kW manufactured by Enercon (India) Limited. RINA confirms the technology implemented reflects

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the current good practice in the host country. Implementation of the project activity doesn't involve any technology transfer from Annex-1 countries to host country. The same has been confirmed from the list of models and manufactures of wind turbines published by Centre for Wind Energy Technology/39/. The technology given in the PDD is consistent with the actual planning and implementation of the project activity. The validation team confirmed the installation, the manufacturer, and capacities through personal inspection of the WEC during the site visit and cross verifying with the purchase order /28/. The annual gross energy generation of the project is estimated to be 205,334 MWh/year based on the PLF of 23.44%. The PLF has been verified by RINA against the independent third party report prepared by Entura Hydro Tasmania/30/. RINA could confirm that the PLF considered by PP is reasonable and in line with the requirement of CDM EB "guideline for the reporting and validation of plant load factors" /19/. PP has deducted 1.5 % losses (0.5% auxiliary power consumption and 1% transformation / transmission losses) /29/; the net energy supplied to the grid is estimated to be 202,254 MWh/year.

Project implementation:

The starting date of the project activity is 27/07/2011, when the project proponent issued the purchase order to Enercon (India) Limited (technology supplier), for the supply of 125 numbers of E-53, 800 kW WEC, Towers, Transformers and DP structures/28/. As per the payment terms with the technology supplier; PP has to make initial payment along with the purchase order/28/. The validation team confirms that, the placing of purchase order along with payment is the date on which the real action for the project activity had begun. Hence, It has been verified by RINA that the starting date (date on which PP has placed the purchase order along with payment, i.e. on 27/07/2011) represents the date of real action towards implementation of the project activity, which is in line with the Glossary of CDM Terms/11/. During the site visit on 25/10/2012 it was observed by the validation team that all the WTGs were erected, commissioned and connected to Southern grid/40/. The commissioning dates were also verified from the commissioning certificates issued by the respective nodal agency to the project activity/41/.

Crediting period and estimated Emission Reductions:

The expected operational lifetime of the project activity is 20 years and this has been confirmed from the project life mentioned in the MoU signed with the technology supplier/62/ for Enercon E53 800kW model. A fixed crediting period is chosen for the project activity and the length of the crediting period is 10 years starting from 30/12/2012, or the date of registration of the project activity under UNFCCC, whichever is later. The GHG emission reductions are estimated to be average 181,436 tCO₂e per year and 1,814,360 tCO₂e over the 10 years crediting period.

Contribution to sustainable development:

The project activity contributes towards the sustainable development of the host country. In line with the host country approval requirements/21/ PP has committed expenditure of 2% of CER revenue in sustainable development activities and the same arrangements are outlined in Appendix 7 of latest PDD/01/.

RINA was able to verify all the documented evidence listed above during the validation process and can confirm that data and considerations are complete and accurate. Moreover RINA confirms that the description of the proposed CDM project activity, as contained in the PDD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM project activity.

3.5 Application of selected baseline and monitoring methodology

The project correctly applies the approved baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 13.0.0 of 11/05/2012 /07/.

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The proposed project activity meets the criteria defined in the baseline methodology as described below:

- The proposed activity is a, Greenfield project, which involves the installation of a new grid-connected renewable power generation facility (i.e. 100 MW wind farm). RINA confirmed the same from the proposal submitted by the technology provider, purchase order submitted by the PP (Tadas Wind Energy Limited) to the technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E53, 800 kW WTGs and the commissioning certificates/27/28/41/. Hence the methodology is applicable to the proposed project activity.
- The proposed project activity is the installation of a new 100 MW wind farm with brand new 125 Nos. of Enercon model E 53 800 kW WTGs. There is no capacity addition, retrofitting or replacements in the proposed project activity. RINA confirmed the same from the proposal submitted by the technology provider, purchase order submitted by the PP (Tadas Wind Energy Limited) and technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E53, 800 kW WTGs and the commissioning certificates/28/41/.
- The proposed project activity is not hydro power project. RINA confirmed the same from the proposal submitted by the technology provider, purchase order submitted by the PP (Tadas Wind Energy Limited) and technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E53, 800 kW WTGs and the commissioning certificates/27/28/41/.
- The proposed project activity is not fuel switch project from fossil fuels to renewable energy sources, biomass fired power plants and the hydro power plant that result in new reservoir . RINA confirmed the same from the proposal submitted by the technology provider, purchase order submitted by the PP (Tadas Wind Energy Limited) and technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E53, 800 kW WTGs and the commissioning certificates/27/28/41/.
- The proposed project activity does not involve any retrofication, replacements or capacity addition. RINA confirmed the same from the proposal submitted by the technology provider, purchase order submitted by the PP (Tadas Wind Energy Limited) and technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E53, 800 kW WTGs and the commissioning certificates/27/28/41/.

The project activity applies the following methodological tools:

- Methodological “tool to calculate the emission factor for an electricity system” version 02.2.1 of 29/09/2011/10/.
- Methodological “tool for the demonstration and assessment of additionality” version 06.1.0 of 13/09/2012/09/.

RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for registration. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology.

3.6 Project boundary

According to the approved baseline and monitoring methodology “ACM0002”, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 13.0.0 of 11/05/2012 /07/ “the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is

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connected to". The generated electricity will be delivered to the Southern grid through the connected sub-station. The project activity falls under Southern grid /15/ and the baseline for this project activity is a function of generation mix of the Southern grid. The selection of Southern grid as the grid system boundary for the project activity is in line with the methodology.

Emissions sources included in the project boundary are shown in the table below:

	GHGs involved	Description
Baseline emissions	CO ₂	Net electricity delivered to the Southern grid by the project activity that would otherwise have been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.
Project emissions	N/A	The project activity does not have any project emission.
Leakage	N/A	As per the applied methodology ACM002, Version 13, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected.

Emission sources which are not addressed by the applied methodology and which are expected to contribute more than 1% of the overall expected average annual emissions reduction have not been identified because the project activity is a Greenfield wind power project and involves mainly assembly and erection of pre fabricated components.

By checking the information and the project site, RINA can confirm that the project boundary and emission sources described in the PDD are accurate and complete, and also that the selected sources and gases are justified for the proposed project activity.

3.7 Baseline scenario identification

According to the approved baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 13.0.0 of 11/05/2012/07/, the following is the baseline scenario for a new grid-connected renewable power plant/unitis:

"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources as reflected in the combined margin (CM) calculations described in the "tool to calculate the emission factor for an electricity system"

Since the approved methodology that is applied prescribes the baseline scenario, no further analysis is required, according to paragraph 115 of the CDM-VVS, version 02.0 /06/.

The relevant National Acts and regulations pertaining to generation of energy in India are:

Electricity Act 2003 /50/

National Electricity Policy 2005 /51/

Tariff Policy 2006 /52/

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The above mentioned National Acts and regulations pertaining to generation of energy in India does not influence the choice of fuel used for power generation. There is no legal requirement on the choice of a particular technology for power generation.

RINA was able to verify all the documented evidence such as CO₂ Baseline Database for the Indian Power Sector user guide version 07 /15/, applied methodology ACM0002 version 13.0.0 of 11/05/2012 /07/, latest PDD/01/, and emission reduction calculation spreadsheet /02/ during the validation process and can confirm that:

All the assumptions and data used by the project participants are listed in the latest PDD/01/, including their references and sources;

The approved baseline methodology “ACM0002”, version 13.0.0 of 11/05/2012 /07/ has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity.

3.8 Additionality

According to the approved baseline and monitoring methodology “ACM0002”, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, 13.0.0 of 11/05/2012 /07/, the additionality of the project has been established applying the tool “Tool for the demonstration and assessment of additionality”, version 06.1.0 /09/.

The additionality of the proposed project activity is further explicitly explained in the following steps.

3.9 Prior consideration of the clean development mechanism

Project starting date:

The starting date of the project activity is 27/07/2011, when the PP place purchase order to the technology supplier (Enercon (India) Limited) for the supply of 125 numbers of E 53 800 kW WTGs /27/28/41/. As per the payment terms with the technology supplier; PP has to make initial payment along with the purchase order/28/. The validation team confirms that, the placing of purchase order along with payment is the date on which the real action for the project activity had begun. Hence, It has been verified by RINA that the starting date (date on which PP has placed the purchase order along with payment, i.e. on 27/07/2011) represents the date of real action towards implementation of the project activity, which is in line with the Glossary of CDM Terms/11/.

Prior consideration of CDM:

Since, the project start date is after 02/08/2008 and the identified start date is prior to 05/09/2012 when the PDD was published for global stakeholder consultation, the PP needs to demonstrate that the CDM was seriously considered in the decision to implement the project activity, that the benefits of CDM were a decisive factor in the decision to proceed with the project and that continuing and real actions were taken to secure CDM status for the project in parallel with its implementation. To confirm the prior consideration of CDM, RINA noted that PP had duly sent a notification letter of prior CDM consideration to both the DNA of India and the UNFCCC secretariat of the commencement of the project activity and of their intention to seek CDM status, using the standardized form F-CDM-Prior Consideration. The notification letter to Indian DNA and to the UNFCCC secretariat was sent on 23/01/2012/25/ and the acknowledgement e-mail was received from UNFCCC on 23/01/2012/26/. Further, the notification is available at UNFCCC website indicating the receiving date of prior CDM consideration notification as 23/01/2012/18/. Such notifications were made within six months of the project activity start date.

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Based on the above assessment, the RINA hereby confirms that the proposed CDM project activity complies with the requirements of the latest version of the Guidelines on the demonstration and assessment of prior consideration of CDM version 04 dated 15/06/2011 (Annex 13 of EB 62)/31/.

In conclusion, in accordance with paragraph 27 of the “Clean development mechanism project standard”, version – 01, annex 5, EB 65 report /05/ and paragraph 107 Clean development mechanism validation and verification standard, annex 4, EB 65 report /06/, RINA can confirm that the CDM was considered necessary in the decision to implement the project activity.

3.10 Identification of alternatives

According to the approved baseline methodology ACM0002 /07/ the baseline scenario for a new grid-connected renewable power plant/unit is the “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources as reflected in the combined margin (CM) calculations described in the “tool to calculate the emission factor for an electricity system” /10/.

Since the baseline is prescribed in the approved methodology no further analysis is required as per para 115 of the CDM-VVS /06/. The project proponent has justified the selection of the baseline scenario in line with the applied methodology and the same is deemed reasonable.

3.11 Investment analysis

Choice of approach:

The PP has chosen to apply investment analysis to demonstrate the additionality of the project activity using the benchmark analysis method. PP has identified post tax equity IRR as the most suitable financial indicator. The project cannot apply simple cost analysis since the project brings revenue from the sale of electricity; also investment comparison analysis cannot be applied as the alternative to the project activity is the electricity generated by new and existing grid connected power plants. Therefore, referring paragraph 19 of the investment analysis guideline/17/ “if the alternative to the project activity is the supply of electricity from grid this is not to be considered an investment and a benchmark approach is considered appropriate”; the project developer has chosen to apply the benchmark analysis method. Since the project proponent is demonstrating the financial unattractiveness of the project and the project cost involves both equity and debt, equity IRR is considered appropriate indicator and accepted by the validation team.

Benchmark selection:

As per paragraph 12 of the Guidelines on investment analysis, required/expected returns on equity are appropriate benchmarks for an equity IRR.

Following is stated in para 15 of Guidelines on the Assessment of Investment Analysis, version 05/17/,

‘If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors. The values in the table in Appendix A may also be used, as a simple default option, if a company internal benchmark is used.’

In line with above, required/expected return on equity is an appropriate benchmark for equity IRR. Accordingly, project participant considered default values for the expected return on equity of 11.75% as given in para 1 and para 6 of Appendix A of Guidelines on the Assessment of Investment Analysis, version 05 /17/, which is expressed in real terms. It was also noted that these default values were available to the PP at the time of this investment decision. The equity IRR calculated is nominal equity

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IRR as escalation is considered in O&M cost. Accordingly PP converted the default benchmark which is in real terms into nominal terms by using the following equation

$$\text{Nominal Benchmark} = (1 + \text{Benchmark real}) * (1 + \text{Inflation rate}) - 1$$

The validation team referred the book 'Financial Management' 9th edition, by I.M. Pandey/**42/**. In page 211 of the book, the same equation is mentioned for converting real into nominal values. Hence the validation team considers the above equation as appropriate for converting real benchmark into nominal benchmark.

$$\text{Nominal Benchmark estimated} = (1 + 11.75\%) * (1 + 4.76\%) - 1 = 17.07\%$$

PP has considered the average forecasted inflation rate for the India (host country) published by the IMF. The values of inflation used is 4.76%/**60/**, is available at the time of decision making that is on 27/07/2011/**24/**. As per the para 7 of Appendix A of Guidelines on the Assessment of Investment Analysis, version 05/**17/**, states that "the inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used."

Reserve Bank of India (RBI) is Central Bank of host country (India) and it is India's monetary authority. The RBI is supervisor of financial system, issuer of currency and manages foreign exchange reserves of the country. Thus the inflation forecast by RBI can be considered as reliable and authentic. The WPI inflation forecasted by RBI for next 10 years is expected to be 5.4%/**59/**, while the average forecasted inflation rate for the India (host country) published by the IMF is 4.76%/**60/**. So PP has used the average forecasted inflation rate for the host country published by the IMF for the conservative estimation of the benchmark. Thus the validation team considers that IMF inflation forecast as appropriate for the project activity. RINA verified all the above said documents and confirmed that the benchmark identified to compare the financial attractiveness of the project activity is appropriate.

Input parameters:

The validation team of RINA validated the input values and assumptions in the investment analysis by checking the original and other supportive documents as detailed below. It is noted that the values of the input values stated in the PDD are consistent with that of the financial calculation sheet **102/**. The lifetime of the WTGs are confirmed to be 20 years as per the technology supplier/**62/** and the investment analysis is done for the period of 20 years and hence is justified as per the guidelines on assessment of investment analysis **17/**.

RINA has validated the input parameters used in the investment analysis and the following steps have been followed to assess the investment analysis.

- Assessment of the sources used for input parameters. All input parameters used in the financial analysis are taken from offer letter issued by technology provider/**27/** and third-party state electricity regulatory commission tariff order/**29/** available at the time of decision making and other third party sources i.e. PLF assessment report **30/** etc. as described in the following table, and can thus considered information provided by independent source.
- Confirmation of the values in the PDD and investment analysis is fully consistent with the values provided in offer letter/**27/**, tariff order/**29/** and PLF assessment report **30/**. RINA compared the input parameters for the financial analysis included in the latest PDD/**01/** and in the investment analysis spreadsheet/**02/** with the parameters stated in the documents used and was able to confirm that the values applied are consistent with the values stated in the offer letter mentioned in the following paragraphs.

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- Assessment of the period between the time of the offer from technology supplier and the investment decision. The investment decision to proceed with the project activity was taken on 27/07/2011/**24/** which was within 26 days from the date of offer letter received from the technology supplier, dated 01/07/2011/**27/**; thus the time gap between offer letter and Board decision is only twenty six days which is sufficiently short and the value would not have materially changed.

Cross-check of the input parameters used in the financial analysis. The input parameters used in the financial analysis were cross-checked and all data sources used to cross-check were checked during the validation process. The following is carried out:

Parameter	Unit	Value	Validation Assessment and cross checking
Capacity of each WTG	kW	800	Verified against offer letter/ 27/ and cross verified against the purchase order placed by the PP (Tadas Wind Energy Limited) to the technology supplier (Enercon (India) Limited)/ 28/ . Further it has been cross checked with the PIM prepared by IL&FS Financial Services Limited (third party) for the project activity/ 63/ .
No. of WTGs		125	Verified against offer letter/ 27/ and cross verified against the purchase order placed by the PP (Tadas Wind Energy Limited) to the technology supplier (Enercon (India) Limited)/ 28/ . Further it has been cross checked with the PIM prepared by IL&FS Financial Services Limited (third party) for the project activity/ 63/ and observation during onsite visit.
Total capacity	MW	100	Verified against offer letter/ 27/ and cross verified against the purchase order placed by the PP (Tadas Wind Energy Limited) to the technology supplier (Enercon (India) Limited)/ 28/ . Further it has been cross checked with the PIM prepared by IL&FS Financial Services Limited (third party) for the project activity/ 63/ .
Plant Load Factor	%	23.44	Verified against the PLF assessment report prepared by Entura Hydro Tasmania dated 11/06/2011/ 30/ . The report is prepared by third party and therefore, the PLF justification is in line with the requirement of "Guidelines for the reporting and validating of Plant Load Factors" version 01 of EB 48 dated 17/07/2009/ 19/ . The indicative PLF in the report is 23.44%, which was available at the time of investment decision. The same has been cross verified with the generation estimate by the technology supplier mentioned in the offer letter/ 27/ and found consistent. Further the value has been cross checked with the PIM prepared by IL&FS Financial Services Limited (third party) for the project activity/ 63/ , which is submitted to the lenders. The PLF mentioned in the PIM, which was available at the time of investment decision is found consistent. RINA confirms that the PLF considered for the project activity is appropriate and hence acceptable.
Auxiliary consumption,	%	0.50	Verified against the KERC tariff order/ 29/ and found appropriate. The same was also confirmed based on

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loses etc			the sectoral expertise of the team/40/.
Transformation /transmission losses	%	1	The values are used based on the internal assessment during the time of investment decision. The same was cross checked with the credit note issued by the state utility /47/48/ and found that actual losses incurred,(i.e. 0.89% & 0.92% for the months of July and August 2012) are comparable to the value considered for the financial analysis. Hence accepted.
Project Hard cost (Cost of WTG)	INR million	5450	The offer letter (proposal) from technology supplier Enercon (India) Limited dated 01/07/2011/27/ was available at the time of investment decision on 27/07/2011/24/. The validation team cross checked the value with the PIM prepared by IL&FS Financial Services Limited for the project activity/63/, which is submitted to the lenders. The value found consistent. Further the validation team has cross verified with the actual cost incurred and found that actual project hard cost incurred is the same as the value used for the financial analysis/69/. Therefore, project hard cost was found acceptable as per the offer letter.
Project Soft Cost	INR million	282.84	The soft cost consists of pre-operative and other expenses (61.5 million INR), interest during construction (190.15 million INR) and working capital margin (31.18). The value is based on the internal assessment during the time of investment decision. The validation team has cross check the values with the PIM prepared by IL&FS Financial Services Limited for the project activity/63/, which is submitted to the lenders. The value of soft cost mentioned in the PIM is INR 282.39 million. Hence, the value considered for the investment decision is found appropriate. Further the validation team has cross verified with the actual cost incurred i.e. INR 282.39 million and found that actual project soft cost incurred are comparable to the value considered for the financial analysis/69/.
Debt	Percentage	75% of project cost	The debt equity ratio (75:25) considered by PP at the time of investment decision is the based on the management assumption. The validation team has cross verified the same with the PIM prepared by IL&FS Financial Services Limited for the project activity/63/, which is submitted to the lenders. The value is found consistent. The validation team has cross checked the same with the common loan agreement signed/38/ for the project activity and found consistent. Hence, the debt equity ratio considered in the investment analysis is acceptable to the validation team.
Equity	Percentage	25% of project cost	
Interest Rate		11%	The management assumption of 11% interest rate has been considered for the investment analysis. The assumption is based on the IREDA's average interest rates for Wind Projects/64/. The validation team has cross verified the same with the PIM prepared by IL&FS Financial Services Limited for the project activity/63/ and the interest rate used is



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			12.25%. Further the validation team has cross checked the interest rate with the common loan agreement signed/38/ for the project activity and the actual interest rate is 12.25%. Hence the value used for the financial analysis is on the conservative side the value is acceptable to the validation team.
Tenure of term loan	Years	12.5	The tenure of term loan is considered by PP at the time of investment decision is the based on the management assumption. Further, as per the actual loan sanction letter, the tenure is 12.5 years/38/ which is consistent. Hence the tenure considered in the investment analysis is acceptable to the validation team.
Tariff (fixed for 10 years)	INR/k Wh	3.70	<p>The tariff order is the document through which the State (Karnataka) Electricity Regulatory Commission determines the tariff rate applicable for wind power projects. The tariff order/29/ is a publicly available document and available at the time of investment decision/24/. The tariff order determines the tariff based on wind zones. The tariff rate (Rs. 3.70/kWh) is fixed for 10 years as per the KERC tariff order/29/. The validation team has cross verified the value with the value mentioned in the PIM prepared by IL&FS Financial Services Limited for the project activity/63/, which is submitted to the lenders. The value is found consistent. PP has considered 10% escalation on tariff from 11th in the revised financial analysis for a conservative estimation of the equity IRR/02/. Further the validation team has cross check the same with the PPA Signed between Hubli Electricity Supply Company Limited and Tadas Wind Energy Limited on 29/03/2012/32/, which the tariff as per the PPA signed is only INR 2.73 and hence the value considered by the PP is very conservative.</p> <p>The validation team has confirmed that during the investment decision (board note)/24/; the PP has not considered benefits from Renewable energy certificates (REC) benefits and therefore has not included this in the investment analysis. The validation team confirms that the consideration of REC is not suitable in the calculation of investment analysis as per the clarifications from EB /72a/72b/. Also the REC Mechanism was launched on 18/11/2010 /65/ which was adopted after 11/11/2001; and this policy is not mandated by the host country regulations.</p> <p>Based on the cross verification of the tariff rate from the PPA, the validation team confirms that the average power purchase cost of INR 2.73/kWh will further include floor price under REC mechanism and that is a variable factor, which is not a constant. Renewable Energy Certificate mechanism which can</p>



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			<p>bring additional revenue to renewable energy generation projects; however they are not mandated by law. Therefore, its impact on the additionality was not evaluated.</p> <p>Hence, the tariff rate as per KERC tariff order /29/ is considered appropriate for the investment decision.</p>
Generation Based Incentive (GBI)	INR/k Wh	0.5	<p>The value is found appropriate and consistent. The validation team has verified the same from the operational guidelines for Implementation of "Generation Based Incentive" for Grid Connected Wind Power Projects by Indian Renewable Energy Development Agency Ltd. (IREDA)/66/.</p>
Maximum Limit of GBI	Million INR/M W	6.2	<p>The value is found appropriate and consistent. The validation team has verified the same from the operational guidelines for Implementation of "Generation Based Incentive" for Grid Connected Wind Power Projects by Indian Renewable Energy Development Agency Ltd. (IREDA)/66/.</p>
Technical life of project activity	Years	20	<p>The technical life of WTG is 20 years as per the MoU signed between the technology supplier Enercon (India) Limited and the PP/62/. Therefore, financial analysis carried for 20 years is acceptable.</p>
O & M cost	INR Million	82.7	<p>It is verified against offer letter/27/ from the technology provider to the PP. The validation team has cross verified against the memorandum of Understanding signed between the developer and the technology supplier (Enercon (India) Limited)/62/. Further the validation team has also cross check the same with other wind projects implemented by the same developer with the same technology supplier (Enercon (India) Limited)/73/ and found that the value of O&M cost considered for project is consistent and appropriate.</p> <p>PP has also subjected the O&M cost to sensitivity; and the validation team observed that even with 100% variation in O & M cost in the sensitivity analysis the equity IRR is below the benchmark. Therefore, the O & M cost as per offer letter is acceptable by the validation team.</p>
Escalation in O&M cost (From 3 rd year onwards)	%	6	<p>It is verified against offer letter/27/ from the technology provider to the PP. The validation team has cross verified against the memorandum of Understanding signed between the developer and the technology supplier (Enercon (India) Limited)/62/ to note that the escalation of 6% from third year onwards is clearly spelt out and agreed. Further the validation team has also cross check the same with other wind projects implemented by the developer with the same technology supplier (Enercon (India) Limited)/73/ and found that the value of escalation in O&M cost considered for project is consistent and appropriate. Hence accepted.</p>

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			PP has also subjected the O&M cost to sensitivity; and the validation team observed that even with 100% variation in O & M cost in the sensitivity analysis the equity IRR is below the benchmark. Therefore, the O & M cost as per offer letter is acceptable by the validation team.
Corporate tax rate	%	33.22	The tax rate is cross checked and found to be correct which was applicable at the time of investment decision /49/.
MAT	%	19.93	The tax rate is cross checked and found to be correct which was applicable at the time of investment decision /49/.
Book depreciation	%	4.5	The project participant has calculated the depreciation as per straight lime method as per rates in Schedule XIV under the Companies Act, 1956/71. RINA has cross checked the same and found to be correct and hence accepted.
Salvage value	%	10	As per CERC tariff order, depreciation is allowed up to a maximum of 90% of the capital cost of the assets/61/; and hence, salvage value considered (10%) at the time of investment decision is appropriate.
Receivables	No. of days	60	Receivables equivalent to 2 months of energy changes for sale of electricity as per KERC tariff order /29/.
Interest rate for working capital	%	14	The PP has sourced the value from SBI PLR available at the time of decision making. The validation team has verified the value and found consistent/58/.
Insurance cost	%	0.03	During the time of investment decision PP has considered 0.25% of the total project cost as insurance cost. The value was based on management assumption. During the course of validation PP has revised it to 0.03%, which is the actual cost incurred/44/. The validation team has accepted the same as the revised value is on the conservative side.

RINA confirms that the input values used in the financial analysis are reasonable and adequately represent the economic situation of the project activity at the time of the investment decision.

Calculation and conclusion:

The validation team further assessed the correctness of computations and documentation carried out by the project participants. The assessment involves checking the data input taken from offer letter issued by technology provider/27/ and third-party state electricity regulatory commission tariff order/29/ available at the time of decision making and other third party sources i.e. PLF assessment report /30/ adoption of correct accounting principle and arithmetical accuracy. The validation team checked offer letter issued by technology provider/27/ and third-party state electricity regulatory commission tariff order/29/ available at the time of decision making and other third party sources i.e. PLF assessment report /30/ and ensured that right input has been taken in the project cost and projections. The accounting principles adopted with respect to computation of depreciation and tax computation are found to be in order. The arithmetical accuracy is also found to be correct. The equity IRR calculations were provided in a spread sheet /02/.

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The calculation were verified in detail and found to be correct by RINA as well as the assumptions used in the calculation were deemed to be correct. The Equity IRR for the project activity without CDM revenues is 9.04%, which confirms that the proposed project activity in absence of CDM benefits and compared to the benchmark IRR of 17.07% is not economically and financially attractive.

Sensitivity analysis:

A sensitivity analysis has been carried out for parameters contributing more than 20% to either the total project costs or the total project revenue in order to demonstrate the robustness of the financial analysis. The parameters for which sensitivity analysis done are annual power generation (PLF), change in tariff, project costs, operational and maintenance cost. Sensitivity analysis was conducted for $\pm 10\%$ variation. Reasonable variations for these parameters were checked by calculating the variation necessary to reach the benchmark and then discussing the likelihood for that to happen.

Parameter	Equity IRR		
Variation in %	-10%	Base Case	+10%
Tariff	5.85%	9.04%	12.24%
PLF	5.82%	9.04%	12.30%
Project cost	12.38%	9.04%	6.41%
O & M cost	9.51%	9.04%	8.56%

Based on the sensitivity analysis the equity IRR does not cross the benchmark under any circumstances. Further review of the sensitivity analysis reveals that for the benchmark to be crossed, one of the following must happen.

Parameter	Percentage variation required to reach the bench mark
Tariff	+24.6%
PLF	+23.9%
Project cost	-20.3%
O & M cost	-189%

Parameter	Probability of the situation
Change in Plant Load Factor	The PLF considered by the PP is 23.44% which is based on PLF assessment report prepared by Entura Hydro Tasmania dated 11/06/2011/ 30/ . As per the Indian wind energy association (IWEA) the PLF for advance class machines with proper micro-siting is in the range of 23%- 27% in the state of Karnataka (page no. 26 of Karnataka Electricity Regulatory Commission, Bangalore tariff order dated 11/12/2009)/ 29/ . Validation team has crosschecked the actual PLF for the project activity for the month of July, 2012 and August, 2012/ 48/ ; and the PLF observed is 15% and 22% respectively. Therefore a further increase of 23.9% in generation is not a realistic scenario.
Project cost	This is not a possible situation. Since, PP has placed Purchase order to Enercon (India) Limited, for the supply of 125 numbers of E-53, 800 kW WEC/ 28/ . The actual project cost is same as the cost (as per offer letter) available at the time of investment decision/ 27/ . Further the validation team has cross verified with the actual cost incurred and found that actual the project hard cost incurred is INR million 5732.39/ 69/ , which is only 0.0078% less than the value considered for financial analysis.
O & M cost	189% reduction in O & M cost is not a practical scenario.
Tariff rate	The tariff order is the document through which the State (Karnataka) Electricity

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	<p>Regulatory Commission determines the tariff rate applicable for wind power projects. The tariff order/29/ is a publicly available document and available at the time of investment decision/24/. The tariff order determines the tariff based on wind zones. The tariff rate (Rs. 3.70/kWh) is fixed for 10 years as per the KERC tariff order/29/. The validation team has cross verified the value with the value mentioned in the PIM prepared by IL&FS Financial Services Limited for the project activity/63/, which is submitted to the lenders. The value is found to be consistent. As per the tariff order, the tariff is fixed for 10 years and further yearly escalation on tariff is not considered after 10 years. However, PP has considered 10% escalation on tariff from 11th in the revised financial analysis for a conservative estimation of the equity IRR/02/. Further the validation team has cross check the same with the PPA Signed between Hubli Electricity Supply Company Limited and Tadas Wind Energy Limited on 29/03/2012/32/ to note that the tariff as per the PPA signed is only INR 2.73 and hence the value considered by the PP is very conservative. Hence further increase of tariff by 24.6% is not realistic.</p> <p>.</p> <p>.</p>
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The result of IRR and sensitivity analysis shows that without the income from CERs sale, the proposed project activity is unlikely to be financially attractive.

3.12 Barrier analysis

The additionality of the project has been demonstrated by applying the investment analysis, thus no barrier analysis is carried out.

3.13 Common practice analysis

The PP has conducted the common practice analysis as per the requirements of “Tool for the demonstration and assessment of additionality Version 06.1.0/09/. In line with the guidance given in this tool, the PP has selected the India (host country) as the default applicable geographical area for the assessment of common practice. Further, the PP has selected the step-wise approach given in Para 47 of the tool to carry out the common practice analysis.

As per the Step 1 of Para 47, the applicable output range as $\pm 50\%$ of the design output range (100 MW) is 50 MW to 150 MW.

In the step 2, PP has identified the plants that deliver the output in the range of 50 MW to 150 MW in the host country India. The geographical scope has been identified as host country India. This is the default option which is in accordance with paragraph 5 of the additionality tool, Version 06.1.0/09/. In accordance with the tool, the power plants that have started commercial operation before the start date, i.e. 27/07/2011, were identified. A total of 483 power projects of comparable output were identified by the PP. The similar power projects were identified from the Wind Power directory 2011, list of thermal and hydropower projects from CO₂ baseline database for Indian Power sector (Version 07)/15/. The PP has correctly excluded the power plants that are registered or are under validation. Validation team confirms from its host country expertise that the comprehensive list of all power plants except solar and biomass used for Nall are correct and valid. The PP has not considered the biomass and solar power plants of similar capacity for estimation of Nall. Solar and biomass power plants are different from wind power plants owing to its different energy/fuel source. Not considering biomass and

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solar projects results in conservative F factor due to lower denominator (Nall) and does not impact Nall – Ndiff.

In step 3, the different projects were identified as 483. Out of the 483 power plants of similar capacity, 240 thermal and 242 hydro power plants are different due to 'energy source/fuel/15/'; The GBI scheme is applicable for wind power projects whose machines are commissioned after 17/12/2009/66/. The remaining 1 is not under GBI scheme as the projects were commissioned before December 2009 (before GBI scheme) which is different due to 'promotional policy'.

In step 4, the PP has calculated F factor as 0 and Nall – Ndiff = 0. The project is not a common practice in India as F factor is less than 0.2. Thus, in view of the guidance given in the Annex 21 of EB 65, the validation team confirms that the analysis has been performed as per the sub-step 4 a and 4 of the "Tool for the demonstration and assessment of additionality" Version 06.1.0 /11/. The team based on the assessment has been able to confirm that the project activity can be regarded as not a common practice in the host country India.

3.14 Conclusion

RINA can confirm that all data, rationales, assumptions, justifications and documentation provided by the project participants to support demonstration of additionality are credible and reliable. By assessing the evidences presented and cross-checking the information contained in, RINA considers the reasoning's for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM project activity. Thus RINA confirms that the above discussion and analysis establishes that the project activity is financially not viable without the benefits from CDM.

3.15 Monitoring Plan

The approved baseline and monitoring methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 13 of 11/05/2012/07/ has been applied.

The monitoring plan is in accordance with the monitoring methodology. The monitoring plan will give opportunity for real measurement of achieved emission reductions. RINA has checked all the parameters presented in the monitoring plan against the requirements of the methodology and no deviations relevant to the project activity have been found in the monitoring plan.

RINA confirms that the monitoring arrangements described in the monitoring plan are feasible within the project design, and the means of implementation of the monitoring plan are sufficient to ensure that the emission reductions resulting from the proposed CDM project activity can be reported ex post and verified.

3.15.1 Parameters determined ex-ante

Baseline emission factor for Southern regional grid is established ex-ante based on the approved methodology ACM0002, version 13/07/, and tools to calculate emission factor for an electricity system, ver 2.2.1/10/.

	Data/parameter	Unit	Value applied	Assessment
1	EF _y (Combined Margin of the Southern Grid)	tCO ₂ /MWh	0.8971	Project participant has used the official published data on operating and build margin emission factors. The version of



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				<p>the data used is as it is the latest version available on 05/09/2012 the date of webhosting of the PDD for global stakeholder comments (viz start of validation). This data is published by Central Electricity Authority, CEA (version 7) /15/ who is the sole authority for the publication of such data in India. CEA has published a database of carbon dioxide emission factors for the power sector in India based on detailed authenticated information obtained from CEA on all operating power stations in the country. Project participant has applied weightage factors for the OM and BM [75% & 25% respectively] as specified in the tool to arrive at the emission factor for the combined margin/03/.</p> <p>Validation team has checked the emission factor calculations from CEA database version 7/15/ and the value of EF_y, is found to be correct. The validation team agrees to this emission factor since it is based on the official background data published by CEA.</p> <p>RINA confirms that the database is an official publication of Ministry of Power, Government of India. The calculation and assumptions were verified by the validation team and found to be correct and appropriate.</p>
2	EF_{BM} (Build Margin of the Southern Grid)	tCO ₂ /MWh	0.7339	<p>Project participant has used the official published data on operating and build margin emission factors. The version of the data used is as it is the latest version available on 05/09/2012 the date of webhosting of the PDD for global stakeholder comments (viz start of validation). This data is published by Central Electricity Authority, CEA (version 7) /15/ who is the sole authority for the publication of such data in India. CEA has published a database of carbon dioxide emission factors for the power sector in India based on detailed authenticated information obtained from CEA on all operating power stations in the country.</p> <p>Validation team has checked the emission factor calculations from CEA database version 7/15/ and the values of EF_{BM} is found to be correct. The validation team</p>

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				<p>agrees to this emission factor since it is based on the official background data published by CEA.</p> <p>RINA confirms that the database is an official publication of Ministry of Power, Government of India. The calculation and assumptions were verified by the validation team and found to be correct and appropriate.</p>
3	EF _{OM} (Generation Weighted Operational Margin of the Southern Grid)	tCO ₂ /MWh	0.9515	<p>Project participant has used the official published data on operating and build margin emission factors. The version of the data used is as it is the latest version available on 05/09/2012 the date of webhosting of the PDD for global stakeholder comments (viz start of validation). This data is published by Central Electricity Authority, CEA (version 7) /15/ who is the sole authority for the publication of such data in India. CEA has published a database of carbon dioxide emission factors for the power sector in India based on detailed authenticated information obtained from CEA on all operating power stations in the country.</p> <p>Validation team has checked the emission factor calculations from CEA database version 7/15/ and the value of EF_{OM} is found to be correct. The validation team agrees to this emission factor since it is based on the official background data published by CEA.</p> <p>RINA confirms that the database is an official publication of Ministry of Power, Government of India. The calculation and assumptions were verified by the validation team and found to be correct and appropriate.</p>

3.15.2 Parameters monitored ex-post:

The ex-post parameters that are mentioned in the methodology are included in the PDD and are provided in compliance with the methodology, and they will be monitored during the crediting period:

	Parameter	Description/Assessment
1	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	The electricity generated will be evacuated to Southern grid at substation and it will be measured by a main energy meter and

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	EG_{facility,y} (MWh/year)	<p>check meter which will be installed at the interconnection point.</p> <p>Monthly readings are taken jointly by the representative of State Electricity Supply Company Limited and site in charge of Operator and a statement is prepared and signed by the representatives of both the parties for total electricity exported to grid, total electricity imported from the grid and the net electricity supplied. The meters installed are capable of measuring export and import. The net electricity exported will be calculated as difference of export and import meter reading. The same has been cross checked with the monitoring plan provided in final PDD and interview with PP during the site visit /01/40/. Data will be sourced from Distribution Licensee report on energy delivered to grid (Credit Note/JMR). The net electricity exported to the Southern grid will be the basis of emission reduction calculations. This reading can be cross verified with the actual invoices presented to State Utility.</p> <p>Project participant has chosen fixed crediting period of 10 years. Continuous monitoring will be carried out by energy meters. Continuous measurements and monthly recording will be carried out.</p>
2	Daily electricity generation at individual WTG controller (MWh/day)	<p>Each WTG is equipped with inbuilt control panel which records electricity import and export data on continuous basis. The data will be recorded daily in Power Generation Reports by the O&M Contractors. This data will be used only for determination of apportioning ratio, and will be applied only in cases where the monitoring period does not coincide with the initial/final meter reading dates in the Credit Notes.</p>

Management system and quality assurance

Electricity meter of 0.2S class accuracy shall be used. Main electricity meters at Sub-station will be calibrated as per the norms of the state utility or annually/01/32/; and the calibration will be in compliance with the national standards/regulation/68/. The accuracy class of the energy meter is as per the CEA notification/68/ and hence complies with the International Standards. Calibration records shall be maintained by state utility/01/, which is in compliance with clause 14 (3) of the national regulations/68/. The O & M of the project activity will be done by the technology supplier who has dedicated trained personnel to carry out the day to day operation and maintenance of the project activity so as to monitor the quantity of electricity supplied to the grid.

The operational and management structure implemented together by PP and the technology supplier is summarized below:

- The O & M team under the shift in-charge monitors continuous electricity generation from individual WTGs and compile so as to calculate the monthly electricity generation.
- The project manager maintains the data records received from shift in-charge and forward to the head of the PP.
- Final data management and invoicing against net electricity generation will be done by Enercon (India) Limited.
- The data will be archived for 2 years after the end of the crediting period by the PP

RINA confirms that the monitoring plan mentioned in the PDD is in accordance with the requirements mentioned in the monitoring methodology/07/ and the local regulatory requirements of the state utility/32/, as well the monitoring arrangements described in the monitoring plan are feasible within the

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project design. RINA is of the opinion that the monitoring plan will give opportunity for real measurement of achieved emissions reductions for 2 years after the crediting period.

3.16 Estimation of GHG emissions

The emission reduction ER_y by the proposed project activity during the crediting period is the difference between baseline emissions (BE_y), project emission (PE_y) and emissions due to leakage (L_y) as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Baseline emissions:

As per ACM0002 Version 13.0.0, equation 6/07/, baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity and are calculated as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$$

Where:

- BE_y = Baseline emissions in year y (tCO_2)
- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
- $EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

Calculation of $EG_{PJ,y}$

The project activity being the Greenfield plant, the calculation of $EG_{PJ,y}$ is carried out using the approach (a) as mentioned in ACM0002 Version 13.0.0/07/, equation 7 as below:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

- $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)
- $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

Determination of $EG_{facility,y}$: For ex-ante estimation, the amount of electricity delivered to grid is estimated to be 202,254 MWh/year. This value is calculated based on the 23.44% PLF /30/ and deduction of 1.5 % losses (0.5% auxiliary power consumption and 1% transformation / transmission losses) /29/.. For ex-post, the value shall be monitored in calibrated energy meter and as recorded in monthly generation report issued by state utility. The same can be cross checked from the invoice copy raised.

Determination of $EF_{grid,CM,y}$: CM (combined margin) emission factor for Southern grid of India has been calculated on the basis of sum of 75% of OM (operating margin) and 25% of BM (build margin).

$$EF_{grid,CM,y} = 0.75 * EF_{grid,OM,y} + 0.25 * EF_{grid,BM,y}$$

The CM emission factor is calculated as 0.8971 tCO_2e/MWh as per the "Tool to calculate the emission factor for an electricity system" (Version 02.2.1, EB 63 Annex 19) /10/ and has been sourced from the Central Electricity Authority (CEA) CO_2 Baseline database /15/.

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Consideration about EF_{OM}: The simple OM emission factor have been calculated using the Simple OM method as the low-cost/must run resources constitute less than 50% (for year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11) /15/. The ex-ante vintage data has been used for the OM calculation of the project. The PDD version 01/01/ was web-hosted for global stakeholder comments from 05/09/2012 to 04/10/2012 and the latest available data vintage is taken for the EF calculations. EF_{OM} for the most recent three years (2008-09, 2009-10 and 2010-11) and the weighted average is calculated to be 0.9515 tCO₂e/MWh/03/. The calculated EF_{OM} is fixed ex-ante and will not be reviewed in the crediting period of the project activity.

Consideration about EF_{BM}: BM is calculated ex-ante based on the average emission intensity of 20% most recent capacity additions in the grid based on the net generation for the year 2010-2011. Consequently, the Build Margin emission factor is calculated to be 0.7339 tCO₂e/MWh. This is as per the "Tool to calculate the emission factor for an electricity system" (Version 02.2.1, EB 63 Annex 19) /10/.

CM (combined margin): The baseline emission factor (CM) is calculated as the average of the operating margin emission factor and the build margin emission factor where the weights W_{OM} and W_{BM}, by default, are 75% W_{OM} and 25% W_{BM}. The combined margin emission factor for Southern grid of India has been calculated to be 0.8971 tCO₂e/MWh, which is fixed ex-ante for the entire crediting period. PP has provided the baseline emission reduction sheet /03/ for the calculation of combined margin emission factor.

The validation team accepted the same as this follows the latest version of the database available to the project participant at the time of submission of PDD for validation. So, RINA is of the opinion that all the assumptions and data used by the PP discussed in the PDD are appropriate and conservative and same has been cross checked with the references and the sources provided by the PP in the PDD /01/.

Project emissions:

As per ACM0002/07/, for most renewable power generation project activities, PE_y = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for, by using the following equation:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where,

PE _y	=	Project emissions in year y (tCO ₂ e)
PE _{FF,y}	=	Project emissions from fossil fuel consumption in year y (tCO ₂)
PE _{GP,y}	=	Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO ₂ e)
PE _{HP,y}	=	Project emissions from reservoirs of hydro power plants in year y (tCO ₂ e)

As the project activity is a wind energy based power generation, the project emissions are not applicable to the project activity. Hence, PE_y = 0

Leakage:

As per ACM000207/, no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport). These emissions sources are neglected. Therefore, LE_y = 0.

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Emission Reductions:

As per equation 11 of ACM0002 Version 13.0.0 /07/, the emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

PP has calculated the emission reductions using the above equation and is estimated to be 181,436 tCO₂e per annum. The calculation of the emission reductions has been ensured by the validation team based on the latest CER calculation sheet/03/.

The emission reductions estimation can be replicated using the data and parameter values provided in the PDD and supporting file submitted for registration. The data sources mentioned have been verified by RINA. RINA confirms that the estimates provided in the latest PDD/01/ are reasonable and the project participant has correctly applied the methodology; the calculations are complete and transparent and the data accuracy has been verified.

3.17 Environmental Impacts

No significant adverse environmental impact is expected due to project activity, since the project is a renewable energy (wind energy) project with no project emissions. Furthermore, there is no mandatory legal requirement for carrying out EIA for wind energy projects in India, which was verified by the EIA notification of MoEF/55/.

RINA has verified all the statutory clearances and commissioning certificates /41/. The validation team concludes that all the clearances obtained are in accordance with the procedures required by the host party and no significant environmental impacts are expected from the project activity.

3.18 Local stakeholders consultation

Prior to the publication of the PDD version 01/01/ on the UNFCCC website from 05/09/2012 to 04/10/2012, the project proponent organized the local stakeholder consultation to get their comments and suggestions of the project activity. Stakeholders' consultation meeting was held on 06/06/2012/36/. Advertisement was published in newspapers on 24/05/2012/34/35/. Gram Panchayat Member, local villagers, employees of the technology supplier, representatives of project participant were present at the meeting. RINA cross checked the attendance list of stakeholders/36/ and also interviewed some of the local stakeholders during site visit to confirm the consistency of the information provided in the PDD.

A summary of comments has been provided by PP and it is found that no adverse comment was received for the project activity/36/. This has also been verified by RINA validation team during site visit on 25/10/2012 at the WTGs site. Further, the interviews confirmed that there was no adverse comment about the project and this project will lead to employment generation and better environmental conditions. RINA considers the local stakeholder consultation carried out adequately and can confirm that the process is credible.

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4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

The PDD version 01 of 15/06/2012/**01/** was made publicly available on the CDM UNFCCC website and Parties, stakeholders and NGOs through the CDM website (<http://cdm.unfccc.int/Projects/Validation/DB/G3K4V8NNGHULTECG5TBX6HLHH6G2EP/view.html>) invited to provide comments during a 30 days period from 05/09/2012 to 04/10/2012. No public comments were received during that period.

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5 VALIDATION OPINION

RINA Services S.p.A (RINA) has performed validation of the project activity “Tadas wind farm in Karnataka” In India with regard to the relevant requirements for CDM activities.

The review of the project design document and the subsequent follow-up interviews have provided RINA with sufficient evidence to determine the fulfillment of the stated criteria.

The host Party is India. Host part fulfills the participation criteria and has approved the project and authorized the project participant ‘Tadas Wind Energy Limited’. The DNA from India confirmed that the project assists in achieving sustainable development.

The project correctly applies the approved baseline and monitoring methodology “ACM0002”, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 13 of 11/05/2012.

By generating renewable energy from wind energy resources, the project results in reduction of CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the “Tadas wind farm in Karnataka” are estimated to be on an average 181,436 tCO_{2e} per year over the selected 10 years of fixed crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is RINA's opinion that the project participants are able to implement the monitoring plan.

In conclusion, it is RINA's opinion that the project activity “ Tadas wind farm in Karnataka” in India, as described in the PDD, version 02 of 23/11/2012, meets all relevant UNFCCC requirements for the CDM and all relevant host party criteria and correctly applies the baseline and monitoring methodology “ ACM0002”, “ Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, version 13 of 11/05/2012.

RINA thus requests registration of the project as a CDM project activity.

APPENDIX A

VALIDATION PROTOCOL

TABLE 1 MANDATORY REQUIREMENTS

Requirement	Reference	Conclusion
1. The project shall assist Parties included in Annex I in achieving compliance with part of their emission reductions commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
2. The project shall assist non Annex I Parties contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2	CAR 1 OK
3. The project shall have the written approval of voluntary participation from the designated national authority of each Party involved	Kyoto Protocol Art.12.5a CDM Modalities and Procedures §40a	CAR 1 OK
4. The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art.12.2 CDM Modalities and Procedure §40	CAR 1 OK
5. In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance (ODA) and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7 CDM Modalities and Procedures Appendix B §2	OK
6. Parties participating in the CDM shall designate a national authority for the CDM	CDM Modalities and Procedures §29	OK
7. The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities and Procedures §30/31a	OK. There is no Annex I party involved in this project activity.
8. The participating Annex I Party's assigned amount shall have been calculated and recorded.	CDM Modalities and Procedure §31b	Not Applicable
9. The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedure §31b	Not Applicable
10. Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	CDM Modalities and Procedure §43	CAR 4, CAR 5, CAR 6, CAR 7, CAR 8, CAR 9, CL 02 and CL 03 OK
11. The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art.12.5b	CAR 10 OK
12. Comments by local stakeholders shall be invited, a summary of these provided and how	CDM Modalities and Procedures §37b	CL 4

Requirement	Reference	Conclusion
due account was taken of any comments received.		OK
13. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30/45 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
14. Baseline and monitoring methodology shall be previously approved by the CDM Methodology Panel.	CDM Modalities and Procedures §37e	OK
15. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §47	CL-1 OK
16. Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords, and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	CAR-10 OK

TABLE 2 REQUIREMENTS CHECKLIST

Checklist Question		Reference	MoV ¹	Comments	Conclusion
A Description of Project Activity					
A.1 Title of the project activity					
A.1.1.	Does the used project title clearly enable the reader to identify the unique CDM activity? Is there an indication of a revision number and the date of the revision.	/01/	DR	Yes; as per the webhosted PDD, the title of the project activity in the PDD is "Tadas wind farm in Karnataka" version 1.0, dated 15/06/2012. The PDD clearly indicates the revision number, version 01 and the date of revision i.e. 15/06/2012. However, the PP is requested to submit the Letter of Approval from host country DNA	CAR-1 OK
A.1.2	Does the project comply with the applicable requirements for completing the PDDs (latest version available)?	/01/, /08/	DR/ CC	No, the PDD does not comply to the latest "Guidelines for completing the project design document form", version 01.0, Annex 8 of EB 66 dated 02/03/2012. 1. PP is requested to include the source of the technical specifications of WEGs mentioned in the section A.3 2. The section A.5 of the PDD refers Annex I to the PDD. However, Annex I is no longer valid to the latest PDD template. 3. Section B.3 PDD doesn't indicate the emission sources and gases as per the PDD guidelines. 4. Data and parameters used to determine baseline scenario are not mentioned in section B.4 of the PDD.	CAR-2 OK
A.1.3	Does the PDD comply with the template available (latest version)?	/01/, /14/	DR/ CC	The PDD complies with the "Project Design Document Form for CDM Project Activities (F-CDM-PDD)" version 04.1, dated 11/04/2012. This was the latest available template at the time of starting the validation.	OK
A.2 Description of the proposed project activity					

¹ MoV: DR document review, I interview, CC cross checking

Checklist Question	Reference	MoV ¹	Comments	Conclusion
A.2.1 Does the PDD contain an accurate description of the project activity and provide the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation? How was the design of the project assessed?	/01/, /28/	DR/ CC	<p>As per the PDD, the purpose of the project activity is to generate electricity from Wind Energy and supply the same to Southern grid of India. The project involves 125 WTGs, each of 800 kW capacity totaling 100 MW at Tadas in Haveri & Darwada district of Karnataka, India. The proposed project capacity is confirmed from the purchase order send by the project proponent to the WTG supplier (Enecon (India) Limited) for supplying 125 WTGs of 800 kW make and from the site visit observations. During the site visit the validation team found that all the 125 WTGs have been commissioned. The PDD explains the technical aspects of the project activity; and the validation team has crosschecked the technical parameters as well as the design parameters of the project activity from the manufactures (Enercon) specification. However the implementation status of the project is not clear in the PDD.</p> <p>Further, PP is requested to submit the following documents:</p> <ol style="list-style-type: none"> 1. Approval from state nodal agency for setting up the wind power project. 2. Land approval/lease agreement executed for the project location. 3. Commissioning certificates of WTGs. 4. Offer Letter from the manufacture 	CL-4 OK
A.2.2 Does the project activity involve alteration of existing installations? If yes, have the differences between pre-project and post-project activity been clearly described in the PDD?	/01/, /27/, /28/	DR/ CC	The project activity is a Greenfield project. This has been confirmed from the purchase order send by the project proponent to the WTG supplier (Enecon (India) Limited) for supplying 125 WTGs of 800 kW make and from the site visit observations. This was further confirmed also during the site visit.	OK
A.2.3 Is all information provided consistent and in compliance with the actual situation or planning?	/01/	DR/ CC/ I	All the information provided in the PDD is consistent and in compliance with the actual situation/planning. The same has been confirmed during the site visit.	OK
A.3 Project participants				
A.3.1 Have the Parties and project participants participating	/01/	DR	As per the table provided in section A.4 of the PDD, the	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
	in the project been listed in tabular form in Section A.3 and are they consistent with the information detailed in Annex 1 of the PDD?		host party involved is India and the project participant is Tadas Wind Energy Limited. The project participant name in section A.4 of the PDD is consistent with the information provided in Appendix-1 of the PDD.	
A.3.2	Do all participating Parties fulfil the participation requirements as follows: (a) Party has ratified the Kyoto Protocol (b) Party has a Designated National Authority (c) The assigned amount has been determined	/01/ /12/ /13/	DR/ CC Since it is a unilateral project, the only party involved is India. India ratified the Kyoto Protocol on 26/08/2002 and is allowed to participate. India has a Designated National Authority (DNA) called National Clean Development Mechanism Authority (NCDMA) under Ministry of Environment and Forest, Govt. of India. There is no assigned amount determined for India.	OK
A.3.3	Have the letters of approval have been issued?	/01/	DR The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1 OK
A.3.4	Do the letters of approval meet the following requirements? (a) LoA(s) is/are issued by the DNA (b) LoA confirms that the Party has ratified the Kyoto Protocol; (c) LoA confirms that participation is voluntary (d) The LoA confirms that the project contributes to the sustainable development of the Host Country? (e) The LoA is valid for the proposed project activity under validation (f) The LoA was received directly by the DNA or by the PP	/01/	DR Please refer to section A.3.3 of this protocol.	CAR-1 OK
A.3.5	Indicate the means of validation employed to assess the authenticity	/01/	DR The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1 OK
A.3.6	Have all private/public project participants been authorized by a Party to the Kyoto Protocol?	/01/	DR Please refer to section A.3.3 of this protocol.	CAR-1 OK
A.3.7	Are the entities included in the PDD those authorized as PPs?	/01/	DR The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1 OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
A.3.8	Do the PP(s) listed in the PDD have a contract with RINA for the project validation?	/01/, /23/	DR	Yes. The PP listed in the PDD has signed a contract with RINA for validating this project activity.	OK
A.4 Modalities of communication					
A.4.1	Does the MoC statement comply with the latest version of the Form F-CDM-MOC available?	/01/, /16/	DR	PP is requested to submit the latest version of the Modalities of Communication statement (F-CDM-MOC) and documentary evidence to check the authenticity of the signing authority.	CAR-3 OK
A.4.2	Does the MoC statement is correctly completed including Annex 1?	/01/, /16/	DR	Please refer to section A.4.1 above.	CAR-3 OK
A.4.3	Does the MoC statement identify all PPs and focal points?	/01/, /16/	DR	Please refer to section A.4.1 above.	CAR-3 OK
A.4.4	How the personal identities, the specimen signatures and the employment status is cross-checked?	/01/, /16/	DR	Please refer to section A.4.1 above.	CAR-3 OK
A.4.5	Is the official who submitted the MoC statement and the official who signed the written confirmation duly authorized to do so on behalf of the respective PPs?	/01/, /16/	DR	Please refer to section A.4.1 above.	CAR-3 OK
A.5 Technical description of the project					
A.5.1	Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude of the site indicated (decimal points)?	/01//37/	DR/ CC	The information provided in the Appendix 8 is not consistent with the Latitude and Longitude for 100 MW wind power project of TWEL at Tadas Site in the state of Karnataka, dated 27/06/2012 provided by Enercon (India)	CAR-4 OK
A.5.2	Is the category(ies) of the project activity correctly identified?	/01/	DR	Yes; the projects falls under Sectoral Scope: 1 (Energy industries (renewable / non renewable sources) and correctly applies the methodology ACM0002 version 13.0.0	OK
A.5.3	Does the project design engineering reflect current good practices? Would the technology result in a significantly better performance than any commonly used technologies in the host Country? Is any transfer of technology from any Annex I Party involved?	/01/, /28/	DR// CC	The project involves electricity generation from Wind Energy. There is no GHG emissions associated with electricity generation from wind energy and therefore the project technology is a clean form of technology. Each WTG included in the project activity is of Enercon E-53 of 800 kW capacity. The same is found consistent during the site visit by the validation team. The technical specifications presented in the PDD are found to be in line with the purchase order send by the project proponent to	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			the WTG supplier (Enecon (India) Limited) for supplying 125 WTGs of 800 kW make. There is no technology transfer from Annex I party in the project activity. The same has been confirmed from the technology provider's website.	
A..5.4	What is the expected operational lifetime of the project activity? Is it reasonable?	/01/	DR As per the web-hosted PDD the operational lifetime of the WTG's are taken as 20 years. PP is requested to provide the supporting documents for the operational lifetime of the project activity.	CL-2 OK
A.6 Public funding				
A.6.1	Does the information on public funding provided conform to the actual situation or planning as presented by the PPs?	/01/,/38/	DR As per the project PDD, the project activity does not involve any public funding. PP has submitted documentary evidence (common loan agreement) for the source of funding of the proposed project activity. The validation team confirms that no public funding is involved in the project activity.	OK
A.6.2	If public funding from Parties included in Annex I is used for the project activity, have these Parties provided an affirmation that such funding does not result in a diversion of development assistance and is separate from and is not counted towards the financial obligations of these Parties?	/01/,/38/	DR Please refer to section A.6.1 above.	OK
B. Baseline and monitoring methodology				
B.1 Methodology applied				
B.1.1	Does the project activity apply an approved methodology and the correct version thereof?	/01/ /07/ /09/ /10/	DR Yes; the project activity correctly applies the approved methodology ACM0002 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", version 13.0.0 of EB 67 dated 11/05/2012.	OK
B.1.2	Is there any specific guidance, including the methodological tools provided by EB and has these guidance been applied?	/01/ /07/ /09/ /10/	DR Yes; the following tools and guidelines are correctly applied in the project activity as referred by the methodology: Tool for the demonstration and assessment of additionality, version 06.0.0, EB 65 Tool to calculate the emission factor for an electricity system, version 02.2.1, EB 63	CL-3 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion									
			Guidelines on the assessment of investment analysis. Version 05, annex 5, EB 62 dated 15/07/2011 However the latest tool for the demonstration and assessment of additionality is available in the UNFCCC CDM website.										
B.1.3	How was it validated that the project activity complies with the applicability criteria?	/01/ /07/ /09/ /10/ /28/	DR/I <table><tr><th>Applicability criteria</th><th>Project activity</th><th>Criteria is met?</th></tr><tr><td>This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).</td><td>The project activity involves option (a) installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). Hence, this criterion is justified.</td><td>The same has been confirmed from the purchase order placed by the TWEL to technology supplier. Criterion is met.</td></tr><tr><td>The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river</td><td>The project activity is installation of a new wind power plant; satisfying the applicability condition.</td><td>Criterion is met.</td></tr></table>	Applicability criteria	Project activity	Criteria is met?	This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The project activity involves option (a) installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). Hence, this criterion is justified.	The same has been confirmed from the purchase order placed by the TWEL to technology supplier. Criterion is met.	The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river	The project activity is installation of a new wind power plant; satisfying the applicability condition.	Criterion is met.	OK
Applicability criteria	Project activity	Criteria is met?											
This methodology is applicable to grid-connected renewable power generation project activities that (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The project activity involves option (a) installation of a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant). Hence, this criterion is justified.	The same has been confirmed from the purchase order placed by the TWEL to technology supplier. Criterion is met.											
The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river	The project activity is installation of a new wind power plant; satisfying the applicability condition.	Criterion is met.											

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit	
			In the case of capacity additions, retrofits or replacements (except for capacity addition projects for which the electricity generation of the existing power plant(s) or unit(s) is not affected: the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity addition or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the	This condition is not applicable as the project activity is installation of a new wind power plant and does not involve capacity addition, retrofit or replacement of a power unit.
				Not applicable to the project activity.

Checklist Question	Reference	MoV ¹	Comments			Conclusion
			project activity			
			<p>In case of hydro power plants, At least one of the following conditions must apply:</p> <ul style="list-style-type: none"> The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each reservoir, as per the definitions given in the Project Emissions section, is greater than 4 W/m after the implementation of the project activity; or <p>The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per the definitions given in</p>	The proposed project activity involves installation of wind power plants; hence this condition is not applicable.	Not applicable to the project activity.	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			the Project Emissions section, is greater than 4 W/m ² after the implementation of the project activity.	
			<p>In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m² all the following conditions must apply:</p> <ul style="list-style-type: none"> •The power density calculated for the entire project activity using equation 5 is greater than 4 W/m²; •Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant; •Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity; 	<p>The proposed project activity involves installation of wind power plants; hence this condition is not applicable.</p> <p>Not applicable to the project activity.</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<ul style="list-style-type: none"> •Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than $4W/m^2$, is lower than 15 MW; •Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than $4 W/m^2$, is less than 10% of the total installed capacity of the project activity from multiple reservoirs. 	
			<p>The methodology is not applicable to the following:</p> <ul style="list-style-type: none"> •Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; •Biomass fired power plants; •Hydro power plant 	<p>The project activity involves installation of a Greenfield wind power project and does not involve switching from fossil fuels to renewable energy sources at the site of the project activity, biomass fired or hydro power plant. Therefore, this condition is not applicable to the project activity.</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			that results in the creation of a new single reservoir or in the increase in existing single reservoir where the power density of the reservoir is less than $4W/m^2$.	
			In the case of retrofits, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, i.e. to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The project activity is a new grid connected wind power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity.
			This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid	The project activity involves installation of a Greenfield wind farm and the power generated by the project
				Criterion is met.

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>electricity, i.e. where a project activity supplies electricity to a grid or a project activity results in savings of electricity that would have been provided by the grid (e.g. demand- side energy efficiency projects).</p> <p>activity will substitute the grid electricity, i.e. the power generated by the project activity will be supplied to the regional grid. Therefore, this tool is applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity, thus satisfying the applicability criterion.</p>	
			<p>Under this tool, the emission factor for the project electricity system can be calculated either for the grid power plants only or, as an option, can include off- grid power plants. In the latter case, the conditions specified in</p> <p>“Annex 2- Procedures related to off- grid power generation” should be met. Namely,</p>	<p>In the host country as off-grid power generation is not significant. Therefore, emission factor for the project electricity system is calculated only for the grid power plants. Thus, this applicability criterion is satisfied.</p> <p>Criterion is met.</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion	
			<p>the total capacity of off- grid power plants (in MW) should be at least 10 % of the total capacity of grid power plants in the electricity system; or the total electricity generation by off- grid power plants (in MWh) should be at least 10 % of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.</p>	<p>In the host country as off-grid power generation is not significant. Therefore, emission factor for the project electricity system is calculated only for the grid power plants. Thus, this applicability criterion is satisfied.</p>	<p>Criterion is met.</p>
			<p>In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in</p>	<p>The proposed CDM project is located in India which is not an Annex I country. Hence, this</p>	<p>Criterion is met.</p>

Checklist Question		Reference	MoV ¹	Comments			Conclusion
				an Annex I country.	applicability criterion is not applicable.		
B.1.4	Is the selected baseline one of the baseline(s) described in the methodology and this hence confirms the applicability of the methodology?	/01/ /07/ /09/ /10/	DR	Yes. The project proponent has chosen baseline scenario as per the approved baseline methodology ACM0002 version 13.0.0. The baseline is the electricity delivered to the grid by the project activity that otherwise would have been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the “tool to calculate the emission factor for an electricity system”.			OK
B.2 Project boundary							
B.2.1	Is the project boundary are clearly defined and in accordance with the applied methodology?	/01/, /02/	DR// CC	As per the methodology the spatial extent of the project boundary includes the power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to. According to the web-hosted PDD the project boundary includes Wind mills, Transformer, Metering & Southern grid. However PDD is not clear how the project boundary is defined for the project activity. Further project boundary figure is not clear on the no. of windmills.			CAR-5 OK
B.2.2	What are the project's system boundaries (components and facilities used to mitigate GHGs)?	/01/07/	DR// CC	The system boundaries for the project activity are the 125 WTGs of 0.8 MW capacity each, the transmission lines and energy meters connected to WTGs for monitoring the quantity of electricity generation before exporting to grid. Southern regional grid has been considered for the purpose of baseline estimation. During the site visit on 25/10/2012 the validation team found that all the WTGs have been commissioned. The technology supplier and project proponent informed that all these 125 WTGs of the PP will be connected along with the other WTGs coming up in that wind farm area at the Tadas			CAR-6 OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				substation. Further the name of the sub-station is not transparent in the project boundary.	
B.2.3	Which sources are identified for the project? Does the identified project boundary cover all possible sources linked to the project activity?	/01/07/	DR// CC	CO ₂ emission from the net electricity displaced in the Southern grid (baseline emissions) has been considered and this reflects clearly in the project boundary. The project activity does not have any project or leakage emission. Moreover, the applied methodology ACM0002, version 13.0.0, does not require considering project emissions and leakage emissions from wind power projects.	OK
B.2.4	In case of grid connected electricity project: is the relevant grid correctly identified in accordance with the latest version of tool to calculate emission factor of electricity system and the underlying methodology?	/01/07/	DR// CC	Yes; Southern grid is correctly identified as the relevant grid for the project activity in accordance with the latest version of the "tool to calculate the emission factor for an electricity system" version 2.2.1. The approach is also in line with the applied methodology.	OK
B.2.5	Does the project involve other emissions sources not foreseen by the methodologies that may question the applicability of the methodology? Do these sources contribute by more than 1% to the estimated emission reductions of the project?	/01/07/	DR// CC	The validation did not reveal any other emission sources, which may contribute to more than 1% to the estimated emission reductions of the project since this is only a windmill project which involves mainly the assembly of components at site and erection.	OK
B.3 Identification of the Baseline Scenario					
B.3.1	Which baseline scenarios have been identified? Is the list of the baseline scenarios complete? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool?	/01/07/	DR// CC	PP has selected the baseline scenario as per methodology ACM0002, version 13.0.0 which states if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the "electricity delivered to the grid by the project activity would have otherwise generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid". According to the paragraph 115 of the CDM-VVS, version 02.0. states that when the baseline scenario is prescribed in the approved methodology, no further analysis is required. Since the baseline selected is in line with the methodology, the same is accepted.	OK
B.3.2	How have the other baseline scenarios been eliminated in order to determine the baseline?	/01/07/	DR// CC	Since the approved methodology that is applied prescribes the baseline scenario, no further analysis is required, according to paragraph 115 of the CDM-VVS, version 02.0	OK
B.3.3	What is the baseline scenario? Is the determination of the baseline scenario in accordance with the guidance	/01/07/	DR// CC	As stated in section B.3.1 above, the baseline scenario is the electricity delivered to the grid by the project activity that	CAR-2 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
in the methodology?			would have been generated by the operation of grid-connected power plants and by addition of new generation sources, as reflected in the combined margin calculations described in the “tool to calculate the emission factor for an electricity system”. It has been determined in accordance with the guidance in the applied methodology ACM0002, Version 13.0.0. However, data and parameters used to determine baseline are not mentioned in section B.4 of the PDD.	
B.3.4 Has the baseline scenario been determined using conservative assumptions? Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies (E+ / E-), macro-economic trends and political aspirations?	/01/06/07/	DR// CC	Since the approved methodology that is applied prescribes the baseline scenario, no further analysis is required, according to paragraph 115 of the CDM-VVS, version 02.0. However, the PP has considered national and sectoral policies while discussing the baseline scenario in section B.5 of the PDD.	OK
B.4 Additionality				
B.4.1 What tool does the project use to assess additionality? Is this in line with the methodology?	/01/07/	DR	The project additionality is discussed as per “tool for the demonstration and assessment of additionality” version 06.0.0. This is in line with the methodology. Please refer to section B.1.2..	CL-03 OK
B.4.2 What is the project additionality mainly based on?	/01/07/09/	DR/ CC	The PP has demonstrated the project additionality as per the investment analysis of the “tool for the demonstration and assessment of additionality” version 06.0.0. And in doing so, PP has referred to the “Guidelines on the assessment of investment analysis” version 05, Annex 05 of EB 62 dated 15/07/2011. PP opted for benchmark analysis and has chosen equity IRR as the financial indicator. However latest version of “tool for the demonstration and assessment of additionality” is available.	CL-03 OK
B.4.3 Prior consideration of CDM				
B.4.3.1 What is the starting date of the proposed project activity? Is it in accordance with the CDM Glossary of Terms?	/01/11/28/	DR/ CC	As per section C.1.1 of the PDD, the start date of the project activity is 27/07/2011 is the date on which purchase order has been placed by the PP to the technology supplier (M/s Enercon (India) Limited) for supplying 125 nos. of E-53 make 800 kW WTGs. The validation team has cross checked the Purchase order and found that the start date justification is appropriate as per the “Glossary of CDM terms” version 06 dated 02/03/2012.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.4.3.2	Is the project activity a new project activity or existing project?	/01/11/28/	DR/ CC	The project is a new project activity since the start date is after 2 August 2008. This has been confirmed from purchase order placed by the project proponent to the technology supplier (M/s Enercon (India) Limited) for supplying 125 nos. of E-53 make 800 kW WTGs.	OK
B.4.3.3	For an existing project activity with a start date is prior the date of the PDD publication for GSC, what is the evidence for serious consideration of CDM prior to the time of decision to proceed with the project activity?	/01/11/28/3 1/	DR/ CC	The project activity is a new project activity as discussed above. Further, PP intimated host country DNA and UNFCCC as per the paragraph 27 of "Clean Development Mechanism Project Standard", version 01.0. and Guidelines on the demonstration and assessment of prior consideration of the CDM This has been cross checked from the copy of e-mail sent to UNFCCC and host country DNA dated 23/01/2012 and copy of acknowledgement e-mail sent by UNFCCC to PP dated 23/01/2012. Therefore, prior consideration of CDM for the project activity is demonstrated. The validation team has also checked the prior consideration section on UNFCCC website and observed that the project is listed in prior consideration section on UNFCCC website and date received is shown as 23/01/2012. However the date mentioned in the PDD is not consistent. Moreover the Project Standard supersedes the Guideline on demonstration and assessment of prior consideration of CDM. However there is no reference to the PS in the PDD for the same.	CAR-7 OK
B.4.3.4	Does the timeline of the project confirm that continuous actions in parallel with the implementation were taken to secure CDM status? Please specify the gap between the documented evidences.	/01/11/28/	DR/ CC	Prior CDM consideration has been taken by PP in line with the "Clean Development Mechanism Project Standard", version 01.0 and It is not required to show continuous actions in parallel to implementation to secure CDM status. Please refer to section B.4.3.3 above.	OK
B.4.4 Investment analysis					
B.4.4.1	What is the analysis method used to determine whether the proposed project activity is not (a) the most economically or financially attractive; or (b) economically or financially feasible, without the revenue from the sale of certified emission reductions?	/01/03/17/	DR/ CC	The simple cost analysis is not applicable as the project activity will be generating revenue other than the CDM related income. The investment comparison analysis is only applicable if the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			services. This option is also not applicable as the proposed baseline scenario does not require the project participant to make an investment. The project participant has applied benchmark analysis to demonstrate the additionality of the project. This is in line with para 16 of CDM EB guideline on assessment of investment analysis, Annex 5 of EB 62 states that "if the alternative to the project activity is the supply of electricity from a grid this is not to be considered as investment and a benchmark approach is considered appropriate".	
B.4.4.2	What the financial indicator is used?	/01/ /17/	Equity IRR is chosen as financial indicator. The financial indicator is appropriate for the type of project activity as per the "guidelines on the assessment of investment analysis" version 05; annex 5 of EB 62 dated 15/07/2011. However PDD is not clear whether the equity IRR chosen is pre tax or post tax.	CAR-8 OK
B.4.4.3	<p>If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the EB guidelines and it represents standard returns in the market?</p> <p>Is the benchmark suitable for the type of financial indicator presented?</p> <p>Is it ensured the any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity?</p>	/01/ /17/	Yes; the benchmark is selected as per EB guideline "Guidelines on the assessment of the investment analysis" (Version 05, EB 62). In accordance to the guideline if the project could be developed by an entity other than the project participant, then the benchmark must be based on the parameters available in the market. Further, the investment analysis guideline also recommends country and project specific expected returns on equity in Appendix of the guideline. The appendix also states that in situations when an investment analysis is carried out in nominal terms, the project participants can convert the real term values provided in the table to nominal values by adding the inflation forecast of the central bank of the host country for the duration of the crediting period. Accordingly, PP also considered default expected return on equity for energy industries (Group 1) applicable for India as 11.75% and referring the guideline, PP converted the real term value into nominal value considering inflation rate as 4.76%. Accordingly, the resulted benchmark considering this approach arrived at a value of 17.07%. However PP is	CAR-8 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			requested to provide the source for the formula used for benchmark calculation in the PDD. Further to derive benchmark PP has used inflation rate sourced from IMF for the host country. IMF can be used only in case the inflation rates from Central Bank are not available. PP is requested justify; and the same is not transparent in the PDD.	
B.4.4.4	Is the investment analysis carried out in accordance with specific guidance from EB? Is the investment analysis complete and accurate? Is the investment analysis provided in a spreadsheet version? Are all the formulas used readable and all relevant cell be viewable and unprotected?	/01/ /17/	DR/ CC The investment analysis is carried out in accordance with EB guideline "Guidelines on the assessment of the investment analysis" (Version 05, EB 62). The investment analysis is provided in a spreadsheet.	OK
B.4.4.5	Cross-check the parameters used in the financial analysis against third party or publicly available sources (all parameters used as input values shall be cross-checked and assessed).	/01/,/03/, /28/, /30/, /32/, /38/	DR/ CC Input parameters used in the financial analysis are cross checked against credible sources (third party or publicly available documents). The validation team has checked the purchase order, third party PLF study, PPA, Common Loan Agreement. However, PP is requested to clarify the following: The source for the transmission losses has been mentioned as internal assessment; PP is requested to provide the basis for the same. The tariff has been considered constant for 20 years; kindly explain the basis for the same. PP is requested to clarify whether the project has been registered under the MNRE scheme (Generation Based Incentive). PP is requested to provide basis for insurance cost considered at 0.50% of project cost. Verified the purchase order raised by the PP which amounts to Rs. 5,450 million and the difference on account of working capital margin, preoperative expenses and IDC. The basis of preoperative expenses of Rs. 61.50 million is not clear, kindly clarify the same. In the IDC calculation, in cell H17, for average calculation there is no opening balance, so kindly clarify the basis for	CL-4 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>considering average formula.</p> <p>Kindly provide the basis for considering project cost outflow of 50:30:10:10 for each quarter.</p> <p>Kindly provide the basis for working capital calculation in the IRR calculation sheet.</p> <p>PP is request to explain the basis for considering margin money at 25% of the working capital. The details for margin money have not been provided in the IRR calculation sheet.</p> <p>PP is request to provide the basis for Debt equity ratio, moratorium period, repayment period and interest rate.</p> <p>Kindly provide the source and basis for tax depreciation in the IRR calculation sheet.</p> <p>PP is requested to provide supportive documents for the following.</p> <p>The source for interest rate on working capital has been mentioned as SBI PLR; kindly provide the appropriate web link for the same.</p> <p>PP is requested to provide the loan Sanction letter.</p> <p>PP is requested to provide the commissioning certificates.</p> <p>PP is requested to provide the KERC tariff order sourced for auxiliary consumption.</p> <p>Proposal from the technology supplier.</p>	
B.4.4.6	Are the input values used in the investment analysis valid and applicable at the time of the investment decision taken by the PP?	/01/ /03/	DR/ CC Please refer to section B.4.4.3 and B.4.4.5 above.	CL-4 OK
B.4.4.7	Where applicable, the PLF has been defined ex-ante according to the applicable EB guideline?	/01/19/ /30/	DR/ CC PP has sourced the value of PLF from the third party assessment study which is in line with the "Guidelines for the reporting and validation of plant load factors" version 01 annex 11 of EB 48 dated 17/07/ 2009	OK
B.4.4.8	Does the time period of the investment analysis reflect the expected operation of the underlying project activity (technical lifetime)?	/01/ /03/ /17/	DR/ CC Yes; the investment analysis is carried out for 20 years which is also the operational life of the project activity. However the PP is requested to provide evidence for the same.	CL-2 OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.4.4.9	Does the fair value of the project activity assets is included at the end of the assessment period as a cashflow in the final year? Is the fair value calculated in accordance with local accounting regulations where available or international best practice?	/01/ /03/	DR	Yes; fair value is included at the end of the assessment period as cash inflow in the final year. The same is in with the local accounting regulations.	OK
B.4.4.10	Does the income tax calculation take depreciation into account? Is the depreciation year in accordance with normal accounting practice in the Host Country	/01/ /03/	DR	Kindly refer the above section B.4.4.6.	CL-4 OK
B.4.4.11	Sensitivity analysis: have the key parameters contributing to more than 20% of the revenue/costs during operating or implementation been identified?	/01/ /03/ /17/	DR/ CC	Yes; the sensitivity analysis considers main parameters such as project cost, PLF (net generation), electricity tariff and O & M cost which either constitute 20% of cost or revenue. This is in line with the “guidelines on the assessment of investment analysis” version 05, annex 5 of EB 62.	OK
B.4.4.11	Sensitivity analysis: is the range of variations is reasonable in the project activity? The main parameters can be changed for the different project category.	/01/ /03/ /17/	DR/ CC	Yes: The range of variations is reasonable in the project activity.	OK
B.4.4.12	Have the key parameters been varied to reach the benchmark and the likelihood of this happening been justified to be small?	/01/ /17/	DR	The PDD does not discuss the required variations of key parameters to reach the benchmark and justify likelihood of such occurrence.	CAR-09 OK
B.4.5 Barrier analysis					
B.4.5.1	Are the barriers identified complimentary to a potential investment analysis?	/01/09/	DR/ CC	Since, step 3 (Barrier analysis) of the “tool for the demonstration and assessment of additionality” is optional if step 2 (Investment analysis) is followed. Hence, PP has not discussed barrier analysis in the PDD. This is in line with the applied tool and hence accepted by the validation team.	OK
B.4.5.2	How were the investment barriers assessed to be real?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
	How were the technological barriers assessed to be real?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.5.3	How were the other barriers assessed to be real?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.4.5.4	Barriers due to prevailing practice (First of its kind): does the project apply measures currently covered in the framework (fuel and feedstock switch, switch of technology with or without change of energy source, methane destruction, methane formation avoidance)?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.5.5	Barriers due to prevailing practice (First of its kind): do the technologies deliver the same output and differ by at least of energy source/fuel, feed stock, size of installation?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.5.6	Barriers due to prevailing practice (First of its kind): does the applicable geographical area is in compliance with the definition as per the EB guideline?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.5.7	Is the project activity prevented by the identified barriers and at least one of the possible alternatives to the project activity is feasible under the same circumstances?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.5.8	How the CDM can alleviate the identified barriers?	/01/	DR	Barrier analysis is not carried out in the project activity. Hence, not applicable to discuss in this section.	OK
B.4.6 Common practice analysis					
B.4.6.1	Does the project apply measures currently covered in the framework (fuel and feedstock switch, switch of technology with or without change of energy source, methane destruction, methane formation avoidance)?	/01/ /09/	DR/ CC	Yes; the project falls under “switch of technology with or without change of energy sources” measures as covered in the framework.	OK
B.4.6.2	Do the technologies deliver the same output and differ by at least of energy source/fuel, feed stock, size of installation, investment climate in the date of the investment decision, other features?	/01/ /09/	DR/ CC	<p>The PP has identified 483 plants that deliver the same output or capacity, within the applicable output range, that are not CDM project activities (registered or are under validation).</p> <p>The total no. of projects with different technologies delivering the same output I = 483. This includes 240 thermal power projects, 242 hydro power projects and 1 large scale wind project without GBI.</p> <p>The PDD is transparent on the different technologies in the context of common practice as per the “tool for the demonstration and assessment of additionality”. PP has</p>	CL-03 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion	
			mentioned about different investment climate, the same is made transparent with credible source. However latest “tool for the demonstration and assessment of additionality” is available.		
B.4.6.3	Does the applicable geographical area is in compliance with the definition as per the EB guideline?	/01/ /09/	DR/ CC	Yes; PP has considered host country (India) as applicable geographical area which is default applicable geographical area as per the “tool for the demonstration and assessment of additionality”. However latest “tool for the demonstration and assessment of additionality” is available.	CL-3 OK
B.4.6.4	How many similar non-CDM-projects exist in the region within the scope?	/01/ /09/	DR/ CC	<p>The PP has identified 483 plants that deliver the same output or capacity, within the applicable output range, that are not CDM project activities (registered or are under validation).</p> <p>The total no. of projects with different technologies delivering the same output I = 483. This includes 240 thermal power projects, 242 hydro power projects and 1 large scale wind project without GBI. i.e N_{all} – N_{diff} = 0.</p> <p>PP has discussed the common practice in stepwise as per the “tool for the demonstration and assessment of additionality”. However latest “tool for the demonstration and assessment of additionality” is available.</p>	CL-3 OK
B.4.6.5	What is the data source(s) used for the common practice analysis?	/01/ /09/	DR/ CC	The data sources used for the common practice analysis are Central Electricity Authority, 2012, Baseline Carbon Dioxide Emissions from Power Sector, Version 7.0 and Directory Indian Wind Power 2011.	OK
B.4.7 Conclusion					
B.4.7.1	What is the conclusion with regard to the additionality of the project activity?			The project additionality shall be concluded after satisfactory conclusion of CAR 4, CAR 5, CAR 6, CAR 7, CAR 8, CL 02 and CL 03	CAR 5, CAR 6, CAR 7, CAR 8, CL 03and CL 04 OK
B.5 Algorithms and/or formulae used to determine emission reductions					
B.5.1 Baseline emissions					
B.5.1.1	Are the steps and equations applied to calculate the baseline emissions in compliance with the	/01/ /07/	DR/ CC	Yes; the baseline emissions are calculated in the PDD as per ACM0002, version 13.0.0 and as follows:	CAR 10 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
requirements of selected baseline and monitoring methodology?	/10/ /15/		$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ <p>Where,</p> <p>BE_y is the baseline emissions. $EG_{PJ,y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) and $EF_{grid,CM,y}$ is the Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂/MWh).</p> <p>Since, the project activity is a green-field project activity,</p> $EG_{PJ,y} = EG_{facility,y}$ <p>The calculation of emission factor is based on the “Tool to calculate the emission factor for an electricity system”, version 02.2.1, annex 19 of EB 63 dated 29/09/2011. Step wise approach as per the tool is followed in the PDD. In addition, “CO₂ baseline database for Indian power sector” version 07 of January 2012, published by Central Electricity Authority which is the latest available data at the time of PDD submission to the DOE is referred for estimating the grid emission factor. However PDD/ER is not transparent on the calculation of the $EG_{PJ,y}$ in the emission reduction calculation section.</p>	
<p>B.5.1.2 Have conservative assumptions been used when calculating the baseline emissions and are the uncertainty estimates properly addressed?</p> <p>Are all the values used in the PDD considered reasonable in the context of the proposed project activity?</p>	/01/02/07/1 0/ /15/	DR/ CC	<p>The baseline emissions are estimated in line with the approved methodology. The net electricity generation is estimated considering a PLF of 23.44%; and PLF considered is in line with the “Guidelines for the reporting and validation of plant load factors” version 01 annex 11 of EB 48 dated 17/07/ 2009.. Further, “CO₂ baseline database for Indian power sector” version 07 of January 2012, published by Central Electricity Authority which was the latest available data at the time of PDD submission to the DOE is referred for estimating the grid emission factor.</p>	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
B.5.1.3	Baseline Emissions estimated	/01/07/10/ /15/	DR/ CC	Baseline emissions estimated ex-ante is 181,436 tCO ₂ /year.	OK
B.5.2 Project emissions					
B.5.2.1	Are the steps and equations applied to calculate the project emissions in compliance with the requirements of selected baseline and monitoring methodology? Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/07/10/ /15/	DR/ CC	Yes; project emissions are discussed as per applied methodology ACM0002, version 13.0.0. In line with the methodology the project does not have any project emissions.	OK
B.5.2.2	Have conservative assumptions been used when calculating the project emissions and are the uncertainty estimates properly addressed?	/01/07/10/ /15/	DR/ CC	Please refer to section B.5.2.1	OK
B.5.2.3	Project emissions estimated	/01/07/10/ /15/	DR/ CC	Project emissions are estimated as zero. Considering the project is a wind power project, this is in line with the methodology.	OK
B.5.3 Leakage					
B.5.3.1	Are the steps and equations applied to calculate the leakage in compliance with the requirements of selected baseline and monitoring methodology? Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/07/10/ /15/	DR/ CC	As per the applied methodology ACM0002, version 13.0.0, no leakage emissions are required to be considered. This is made transparent in the PDD.	OK
B.5.3.2	Have conservative assumptions been used when calculating the leakage and are the uncertainty estimates properly addressed?	/01/07/10/ /15/	DR/ CC	Please refer to section B.5.3.1	OK
B.5.3.3	Leakage estimated	/01/07/10/ /15/	DR/ CC	Leakage emissions are estimated as zero. This is in line with the methodology.	OK
B.5.4 Emission reductions					
B.5.4.1	Has the methodology been correctly applied to calculate the emission reductions and can this be replicated by the data provided in the PDD and supporting files to be submitted for registration?	/01/07/10/ /15/	DR/ CC	The methodology is applied correctly to calculate the emission reductions in the PDD. The baseline emission is estimated multiplying the net electricity supplied to the grid by the project activity with grid emission factor. Net electricity is estimated multiplying the installed capacity (100 MW) which is evident from the purchase order with PLF of the project activity and annual operating hours. The	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				grid emission factor is estimated as per the “tool to calculate the emission factor for an electricity system” version 02.2.1 and publicly available data from the “CO ₂ baseline database for Indian Power Sector” version 7 published by Central Electricity Authority. The project emission and leakage emission is not identified as per the applied methodology.	
B.5.4.2	Are all the assumptions and data used by the project participants listed in the PDD including their references and sources?	/01/07/10/ /15/	DR/ CC	Yes; the PDD transparently mentions all the assumption and data used including their reference and sources.	OK
B.5.4.3	Is all the documentation used by the project participants as the basis for assumptions and source of data quoted and interpreted in the PDD?	/01/	DR/ CC	Yes; all the documentation used by the PP is quoted and interpreted in the PDD.	OK
B.5.4.4	Emission Reductions estimated	/01/07/10/ /15/	DR/ CC	Emission Reductions estimated is 181,436 tCO ₂ /year.	OK
B.6 Monitoring plan					
B.6.1 Parameters ex-ante					
B.6.1.1	Does the monitoring plan contain the list of all parameters required by the approved methodology and by the applicable methodological tool?	/01/07/	DR/ CC	Yes; the monitoring plan in the PDD contains all parameters required by the approved methodology and the applicable methodological tool. This is further discussed in below sections.	OK
B.6.1.2	How were the parameters available at validation verified?	/01/07/15/	DR/ CC	<p>The following parameters were available at the time of validation:</p> <p>EF_{grid, OM, y} (Operating Margin emission factor): Operating margin emission factor is estimated as per the “tool to calculate the emission factor for an electricity system” and referring the publicly available data published by Central Electricity Authority in the “CO₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012. This was the latest data available at time of start of validation.</p> <p>EF_{grid, BM, y} (Build Margin emission factor): Build margin emission factor is estimated as per the “tool to calculate the emission factor for an electricity system” and referring the publicly available data published by Central Electricity Authority in the “CO₂ Baseline Database for the Indian Power Sector User Guide, Version 7.0, January 2012. This</p>	CAR-10 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion	
			was the latest data available at time of start of validation. Accordingly, the Combine margin emission factor ($EF_{grid, CM,y}$) is calculated in line with the tool. However the OM values are not consistent with the section B.6.2 and B.6.3 of the PDD and the ER spread sheet.		
B.6.1.3	Which default data have been selected and applied?	/01/10/	DR/CC	No default values have been applied.	OK
B.6.1.4	Are all the values used in the PDD considered reasonable in the context of the proposed project activity?	/01/07/	DR/CC	Yes; the values used in the PDD and considered reasonable in the context of the project activity.	OK
B.6.2 Parameters ex-post					
B.6.2.1	Does the monitoring plan described in the PDD comply with the requirements of the methodology and the applicable methodological tool?	/01/07/	DR//CC	The methodology requires monitoring of net electricity generation supplied by the project plant to the grid in a year. The grid emission factor is estimated ex-ante as per the procedures outlined in “tool to calculate the emission factor for an electricity system” version 02.2.1, of EB 63 dated 29/09/2011.The institutional arrangement for data handling and storage, calibration frequency of energy meter and apportioning procedure to be followed for net electricity export is presented in the PDD.	OK
B.6.2.2	Does the monitoring plan contain all necessary parameters and are they clearly described?	/01/07/	DR//CC	PDD is not transparent on monitoring of the parameters and is not consistent with actual monitoring plan in place. Further The Apportioning procedures are not transparent in the PDD.	CAR-11 OK
B.6.2.3	Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate? Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	/01/07/	DR//CC	Yes; the measurement equipment mentioned and its accuracy are appropriate. This has been verified during the site visit. The calibration frequency mentioned (annually) is found appropriate. However please refer to section B.6.2.2 above.	CAR-11 OK
B.6.2.4	Is the monitoring and recording frequency adequate for all monitoring parameters? Is it in line with the monitoring methodology?	/01/07/	DR//CC	Yes; the net electricity generation supplied to grid shall be measured continuously and recording will be done at least monthly. This is in line with the methodology. The validation team cross checked the same from the log book maintained during the site visit.	OK
B.6.2.5	How has it been assessed that the monitoring arrangements described in the monitoring plan are	/01/07/	DR//CC	As per PDD the operation and maintenance of the project activity will be done by Enercon (India) Limited. As per	CAR-11 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
feasible within the project design? Please confirm the ability of the project participants to implement the described monitoring plant.			discussions with technology supplier at site gross electricity exported to grid and gross electricity imported from grid are to be monitored both in main energy meter and check meter installed at the Tadas substation. However, the meters are connected to a number of WTGs including the project WTGs. Based on the monthly joint meter readings by representatives of state utility and representatives of O & M personnel apportioning will be done by state utility and sharing certificate of net electricity export to grid shall be issued to each WTG owner. The sharing certificate issued by state utility will automatically consider the apportioning procedure. The net electricity export can be cross checked from the invoice raised by PP. In addition, each WTG has inbuilt control panel which provides continuous generation details electronically and this shall be recorded on daily basis. On the event of meter failure the control panel readings can be referred to estimate the electricity generation. However the details of apportioning procedures are not transparently mentioned in the PDD.	
B.6.3 Management/Quality Assurance/Quality Control				
B.6.3.1 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?	/01/,/07/	DR	Day to day record handling ((including what records to keep, storage area of records and how to process performance documentation) procedures are not included in the PDD.	CAR-11 OK
B.6.3.2 Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/01/,/07/	DR// CC	Gross quantity of electricity exported to grid is continuously monitored in the main and check meter installed at the substation. The main meter remains under the custody of state utility. Monthly joint meter reading is taken by state utility and representatives of O & M personnel from the main meter. Since main meter is connected to number of WTGs including the project WTGs; therefore, the apportioning is done entirely by state utility and share certificate is issued to each WTG owner. The share certificate reflects the net quantity of electricity exported to grid by the project WTGs. The net quantity of electricity export to grid from the share certificate will be used directly to quantify the emission reductions achieved from the project activity. From copies of invoices raised by PP to state utility for electricity export can be used to cross check	CAR-11 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion	
			the net electricity export by the project activity. The Apportioning procedures mentioned in the PDD are not consistent with the actual procedures.		
B.6.3.3	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/01/,/07/	DR/ CC	Yes; all the data recorded under the monitoring plan will be kept till 2 year after the end of crediting period. This is in line with the methodology.	OK
C.1 Crediting period					
C.1.1	What is the expected crediting starting date of the proposed project activity? Does the crediting period start eight week after the request for registration?	/01/	DR	As per the section C.2.2 of the PDD, the expected starting date of crediting period is 01/08/2012 or date of registration of the project activity with UNFCCC whichever is later. However the date mentioned is not realistic.	CAR-12 OK
C.1.2	What is the length of the crediting period? Is it clearly defined and reasonable?	/01/	DR	The PP has considered renewable crediting period and the length of first crediting period is considered as 7 years which is reasonable and appropriate.	OK
D.1 Environmental impacts					
D.1.1	Has an analysis of the environment impacts of the project activity been undertaken? Is it clearly and sufficiently described in the PDD?	/01/,/20	DR/ CC	As per the notification of Ministry of Environment and Forest (MoEF), Govt. Of India, dated 01/12/2009, wind power projects don't fall under the purview of Environmental Impact Assessment notification.	OK
D.1.2	Is the analysis of the environmental impacts required by the legislation of the host Country? If yes, has the EIA has been approved by local Government? Does the approval contain any conditions that need monitoring?	/01/,/20	DR/ CC	As per the notification of Ministry of Environment and Forest (MoEF), Govt. Of India, dated 01/12/2009, wind power projects don't fall under the purview of Environmental Impact Assessment notification.	OK
D.1.3	Is it the project in line with the current environmental legislation in the host Country?	/01/,/20	DR/ CC	The project is in line with the current environment legislation in the host country (India). Please refer to section D.1.1	OK
D.1.4	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host country?	/01/,/20	DR/ CC	Monitoring of sustainable development indicators are required as per the host country approval procedures and needs to outline in the PDD. However, the same is not concluded in the PDD.	
D.1.5	Are the sustainable development indicators in line with stated national priorities in the host country?	/01/,/20	DR/ CC	The letter of approval from host country DNA is not yet available. The PP is requested to provide the same.	CAR-1 OK
E.1 Local stakeholder consultation					

Checklist Question	Reference	MoV ¹	Comments	Conclusion	
E.1.1	Are the local stakeholders be invited by the PP prior to the publication of the PDD to the UNFCCC website?	/01//33/34/35/36/	DR/C C/I	As per the webhosted PDD, PP had invited the local stakeholders by advertising in the local newspapers “Hindustan Times” and “Karnataka Daily” on 24/05/2012 and the meeting was conducted on 06/06/2012. However validation team was unable to verify the name of the newspapers and the date of publishing this advertisement from the document submitted. The date in which stakeholder meeting conducted was verified by the validation team by cross checking and verifying the photographs taken during the stake holder meeting, attendance sheet signed and minutes of meeting. The date was further confirmed by the validation team during the site visit by interviewing the local villagers who had attended the meeting.	CL-05 OK
E.1.2	Area the stakeholders invited be considered as regards commenting the proposed project activity?	/01//33/34/35/36/	DR/C C/I	The stakeholders invited included the District Authority, Local Gram Panchayat and local people who live in the places close to the project site. The same was confirmed by the validation team by interviewing stakeholders who had attended the interview. Thus it was confirmed by the validation team that the stakeholders invited and attended are adequate as they were directly affected by the project activity. 33 stakeholders had attended the interview which was cross verified by checking the attendance list.	OK
E.1.3	Is the summary of the comments received from the stakeholders, provided in the PDD complete?	/01/36/	DR/C C	PP has provided the list of comments raised by the stakeholders at the time of interview. The responses provided by the PP are also included in the PDD.	OK
E.1.4	Has due account been taken by the project participants of any stakeholder comments received?	/01//36/	DR/C C/I	There were no adverse comments raised by the stakeholders. The same was confirmed by the validation team during the site visit by interviewing stakeholders who had attended the interview.	OK
E.1.5	If a stakeholder consultation process is required by regulations/laws in the host Country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/01/	DR	Stakeholder consultation is not required as per the regulation/law in the host country.	OK

TABLE 3 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Validation Conclusion
<p>CAR 1</p> <p>The project proponent is requested to submit the copy of Letter of Approval (LoA) from host country DNA.</p>	A.1.1, A.3.3, A.3.4, A.3.5, A.3.6, A.3.7	HCA has been submitted to the DOE.	The project participant has provided the host country approval for the project activity. The HCA refers to precise project activity title as mentioned in PDD. HCA states that project contributes to sustainable development in the country. It is also stated in HCA that it is an approval of voluntary participation in the project activity. Further it is stated in HCA that Govt of India is a party to Kyoto Protocol. CAR is closed.
<p>CAR 2</p> <ol style="list-style-type: none"> 1. PP is requested to include the source of the technical specifications of WEGs mentioned in the section A.3 2. The section A.5 of the PDD refers Annex I to the PDD. However, Annex I is no longer valid to the latest PDD template. 3. Section B.3 PDD doesn't indicate the emission sources and gases as per the PDD guidelines. 4. Data and parameters used to determine baseline scenario are not mentioned in section B.4 of the PDD. 	A.1.2	<ol style="list-style-type: none"> 1. The source of the technical specifications is WRAP Agreement between Enercon (India) Limited and TWEL dated 27 July 2011. The same has been mentioned in section A.3 of the revised PDD. 2. Annex I has been revised to Appendix 1 in section A.5 of the revised PDD and now is in accordance with the latest PDD template. 3. Since the project emissions are zero there are no emission sources and gases in the project boundary. 4. Data and parameters used to determine baseline scenario have now been included in section B.4 of the revised PDD. 	PP has revised the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.
<p>CAR 3</p> <p>PP is requested to submit the Modalities of</p>	A.4.1, A.4.2, A.4.3, A.4.4, A.4.5	The Modalities of Communication (MoC) statement has been submitted to the DOE.	PP has submitted the MoC. The validation team can confirm that the PP has used the latest version of the MOC

Communication (MoC) statement for the project activity.			statement form. The signatory and contact details on the MoC is consistent with the details provided in the appendix 1 of the PDD are authorized and credible and it fulfills the requirement of paragraph 59 and 60 of VVS version 2 Participation Requirements. CAR is closed.
CAR 4 The information provided in the Appendix 8 is not consistent with the Latitude and Longitude for 100 MW wind power project of TWEL at Tadas Site in the state of Karnataka, dated 27/06/2012 provided by Enercon (India)	A.5.1	Appendix 8 has been revised as per the geo-coordinates details provided by Enercon (India) in the letter dated 27/06/2012.	PP has updated the geo-coordinates details in the appendix 8 of the PDD. The revision is now in line with the actual geo-coordinates. Hence CAR is closed.
CAR 5 PDD is not clear how the project boundary is defined for the project activity. Further project boundary figure is not clear on the no. of windmills	B.1.2.	The project boundary has now been described in the revised PDD. Also, the project boundary diagram has been revised for the number of windmills in the project activity.	PP has revised the project boundary description as well as project boundary diagram in the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.
CAR 6 During the site visit on 25/10/2012 the validation team found that all the WTGs have been commissioned. The technology supplier and project proponent informed that all these 125 WTGs of the PP will be connected along with the other WTGs coming up in that wind farm area at the Tadas substation. Further the name of the sub-station is not transparent in the project boundary.	B.2.2	The Commissioning Certificates of all 125 WTGs have been submitted to the DOE. The sub- station for the project activity is at Bidnal and the same has been mentioned in the revised PDD.	PP has submitted the commission certificates of all 125 WTGs. The validation team examined the same and found authentic; and hence acceptable. PP has updated the PDD with the sub-station name and found correct. CAR is closed.
CAR 7 The prior consideration section of UNFCCC website shows that date on which the prior consideration has been received on 23/01/2012. However the date mentioned in the PDD is not consistent. Moreover the Project Standard supersedes the Guideline on demonstration and assessment	B.4.3.3	The date from 16/1/2012 has been changed to 23/01/2012 in Table 8 of section B.4 of the revised PDD which is now in line with the date of publication at the UNFCCC website. The PP has referred to the Clean Development Mechanism Project	PP has corrected the date in the PDD and the correction is found appropriate. PP has also referred the PS in the PDD for the prior CDM consideration. Hence accepted. CAR is closed.

of prior consideration of CDM. However there is no reference to the PS in the PDD for the same.		Standard version 01 and the same has been mentioned in the revised PDD.	
<p>CAR 8</p> <p>PDD is not clear whether the equity IRR chosen is pre tax or post tax.</p> <p>To derive benchmark PP has used IMF inflation rate for the host country. IMF can be used only in case the inflation rates from Central Bank are not available. PP is requested justify; and the same is not transparent in the PDD.</p> <p>PP is requested to provide the source for the formula used for benchmark calculation in the PDD.</p>	B.4.4.3	<p>1. The equity IRR chosen is post tax and is now reflected in the PDD</p> <p>2. IMF has been used as it is the most reliable and conservative source. The inflation rate available at Reserve Bank of India (RBI) "Results of 15th Round (Q4:2010-11) of Survey of Professional Forecasters on Macroeconomic Indicators" dated 25th May 2011 is 5.40% whereas at IMF it is 4.76%. Therefore the conservative value has been taken. The same has been made clear in the section B.5. of the PDD.</p> <p>3. The benchmark calculation has been done using the formula from "Financial Management" 9th edition, by I.M. Pandey (page 211) A copy of the page illustrating the formula used for benchmark calculation has been submitted to the DOE.</p>	PP has revised the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.
<p>CAR 9</p> <p>The PDD does not discuss the required variations of key parameters to reach the benchmark and justify likelihood of such occurrence.</p>	B.4.4.12	The same has now been incorporated in section B.5 of the revised PDD.	PP has included the required variations of key parameters to reach the benchmark and justify likelihood of such occurrence in the final PDD. The same is found appropriate and hence accepted. CAR is closed.
<p>CAR 10</p> <p>PDD/ER is not transparent on the calculation of the $EG_{PJ,y}$ in the emission reduction calculation section.</p> <p>The OM values are not consistent with the section B.6.2 and B.6.3 of the PDD and the ER spread sheet.</p>	B.5.1.1, B.6.1.2	<p>1. The calculation of $EG_{PJ,y}$ is now made transparent in PDD and ER sheet.</p> <p>2. The OM values are now made consistent in PDD and ER spreadsheet.</p>	PP has revised the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.

<p>CAR 11</p> <p>PDD is not transparent on monitoring of the parameters and is not consistent with actual monitoring plan in place. Further The Apportioning procedures are not transparent in the PDD.</p>	<p>B.6.2.2, B.6.2.5, B.6.3.2</p> <p>B.6.2.3, B.6.3.1,</p>	<p>The monitoring plan B. 7.3 and parameters to be monitored under section B. 7.1 have been revised to incorporate details of monitoring and measurement, and apportioning procedures.</p>	<p>PP has included the details of monitoring/measurement and apportioning procedures in the section B.7.1 of the PDD and the revision is found appropriate and in line with the actual practice at the project site. Hence accepted. CAR is closed.</p>
<p>CAR 12</p> <p>As per the section C.2.2 of the PDD, the expected starting date of crediting period is 01/08/2012 or date of registration of the project activity with UNFCCC whichever is later. However the date mentioned is not realistic.</p>	<p>C.1.1.</p>	<p>The date been revised to 30/12/2012 in Section C.2.2 of the revised PDD.</p>	<p>PP has revised the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.</p>
<p>CL 1</p> <p>The implementation status of the project is not clear in the PDD. PP is requested to address the same in the PDD.</p> <p>Further PP is requested to submit the following documents:</p> <ol style="list-style-type: none"> 1. Approval from state nodal agency for setting up the wind power project. 2. Land approval/lease agreement executed for the project location. 3. Commissioning certificatesOffer Letter from the manufacture 	<p>A.2.1</p>	<p>The project has been successfully commissioned on 29/09/2012; i.e. all the windmills were commissioned by this date, and the same has been mentioned in section A.3 of the revised PDD.</p> <p>All the documents have been submitted to the DOE.</p>	<p>PP has included the implantation status of the project activity in the section A.1 of the PDD.</p> <p>PP has submitted the requested document. The validation team reviewed the same and found appropriate. Hence accepted.</p> <p>CL is closed.</p>
<p>CL 02</p> <p>As per the web-hosted PDD the operational</p>	<p>A.5.4, B.4.4.8</p>	<p>The Memorandum of Understanding (MoU) has been used to determine the</p>	<p>PP has submitted the MoU; and the MoU mentions project life as 20 years</p>

lifetime of the WTG's are taken as 20 years. PP is requested to provide the supporting documents for the operational lifetime of the project activity.		operational lifetime of the WTG. A copy of the same has been submitted to the DOE.	which is in line with the PDD. The same is found acceptable. Hence CL is closed.
CL 3 The tool for the demonstration and assessment of additionality used for the project activity is version 6.0.0; however the latest tool for the demonstration and assessment of additionality is available in the UNFCCC CDM website.	B.1.2, B.4.1, B.4.2, B.4.6.2, B.4.6.3, B.4.6.4	The PDD has been revised for latest version of 06.1.0 of the "Tool for demonstration and assessment of additionality".	PP has revised the PDD and the revision made is found appropriate. Hence acceptable. CAR is closed.
CL 4 PP is requested to clarify the following: 1. The source for the transformation losses has been mentioned as internal assessment; PP is requested to provide the basis for the same. 2. The tariff has been considered constant for 20 years; kindly explain the basis for the same. 3. PP is requested to clarify whether the	B.4.4.5, B.4.4.6, B.4.4.10	<p>The transformation losses are based on values taken for other projects and also justifiable from actual data (JMR) which has been submitted to the DOE.</p> <p>The tariff is kept constant for 10 years as per KERC order and escalated by 10% from 11th year onward to be conservative.</p> <p>1. PP will be applying for the GBI benefits when the renewed guidelines come into force. PP has also considered GBI for</p>	<p>Validation team has crosscheck the value of transformation losses used for investment analysis against the actual data (credit note/JMR) submitted; and found the value of transformation losses used for investment decision is appropriate. Hence accepted.</p> <p>As per the KERC order dated 11/12/2009 the tariff is fixed for 10 year. PP has considered 10% escalation on the tariff for a conservative investment analysis. However validation team has reviewed the actual PPA submitted by the PP for the project activity; and found the tariff considered for the project activity is conservative and hence accepted.</p> <p>The justification provided by PP is found appropriate and hence acceptable. The validation team has also confirmed that the PP has considered the revenue from GBI for</p>

<p>project has been registered under the MNRE scheme (Generation Based Incentive).</p> <p>4. PP is requested basis for insurance cost considered at 0.25% of project cost.</p> <p>5. Verified the purchase order raised by the PP which amounts to Rs. 5,450 million and the difference on account of working capital margin, preoperative expenses and IDC. The basis of preoperative expenses of Rs. 61.50 million is not clear, kindly clarify the same.</p> <p>6. In the IDC calculation, in cell H17, for average calculation there is no opening balance, so kindly clarify the basis for considering average formula.</p>		<p>other similar projects (http://110.234.218.202/iredawindmill/form/ReportgbiScheme.aspx)</p> <p>2. The insurance cost of 0.25% was based on data from other projects but has now been revised based on actual cost incurred to be conservative.</p> <p>3. The basis of preoperative expenses is Project Information Memorandum (PIM) which has also been submitted to banks for loan.</p> <p>4. The formula has been revised in the financial analysis sheet.</p> <p>5. The project cost outflow has been considered 50% in first</p>	<p>the estimation of equity IRR.</p> <p>PP has used the value of insurance cost as 0.25% of project cost, which is based on management assumption. However for a conservative investment analysis PP has revised the value as 0.03% of the project cost, which is based on the actual insurance cost. The validation team has reviewed the insurance policy document submitted by the PP and found acceptable, as the value considered is conservative.</p> <p>The validation team has reviewed the justification provided by the PP and found appropriate. Hence accepted.</p> <p>The validation team has reviewed the revised financial sheet. The revision made is found appropriate.</p> <p>The justification provided by the PP is found acceptable.</p> <p>The validation team confirms that the</p>
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<p>7. Kindly provide the basis for considering project cost outflow of 50:30:10:10 for each quarter.</p> <p>8. Kindly provide the basis for working capital calculation in the IRR calculation sheet.</p> <p>9. PP is request to explain the basis for considering margin money at 25% of the working capital. The details for margin money have not been provided in the IRR calculation sheet.</p> <p>10. PP is request to provide the basis for Debt equity ratio, moratorium period, repayment period and interest rate.</p> <p>11. Kindly provide the source and basis for tax depreciation in the IRR calculation sheet.</p>		<p>quarter as major investment related to advance for purchase of equipments is done in first quarter, 40% costs related to erection in next 2 quarters and rest 10% in 4th quarter.</p> <p>6. The working capital has been calculated considering 2 month receivable as per KERC order (Pg 21).</p> <p>7. The margin money calculation is based on PIM submitted to bank for loan sanction (page 77). The detail of the same is provided in worksheet "WC" of the IRR calculation sheet.</p> <p>8. The values are based on PIM (pg 80) and IREDA (http://www.ireda.gov.in/pdf/Annexure%20A%20(Interest%20Rate%20and%20etc.).pdf) for interest rate.</p> <p>9. The tax depreciation is taken from Direct Taxes Ready Reckoner (Dr. VK Singhania, Taxmann's). Extract submitted to DOE.</p> <p>http://thebankingbible.com/historical-base-ratesbplrs-of-sbi-4503</p>	<p>working capital calculation is in line with KERC tariff order 11/12/2009. Hence accepted.</p> <p>The validation team confirms that the margin money calculation is in line with the PIM submitted to the lenders for the sanction of loan. Hence accepted.</p> <p>The validation team has checked the PIM and IREDA document submitted. The values used for the investment analysis is found consistent.</p> <p>The PP has submitted the document; and the values used are found consistent.</p> <p>The source used is found appropriate. Hence accepted.</p> <p>PP has submitted the loan sanction letter for the project activity and found acceptable.</p> <p>PP has submitted the commission certificates and found acceptable.</p> <p>PP has submitted the KERC tariff order dated 11/12/2009 and found appropriate.</p> <p>PP has submitted the offer letter from</p>
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<p>PP is requestred to provide supportive documents for the following.</p> <ol style="list-style-type: none"> 1. The source for interest rate on working capital has been mentioned as SBI PLR; kindly provide the appropriate web link for the same. 2. PP is requested to provide the loan Sanction letter. 3. PP is requested to provide the commissioning certificates. 4. PP is requested to provide the KERC tariff order sourced for auxiliary consumption. 5. Proposal from the technology supplier. 		<p>Loan Sanction letter for the project activity has been submitted to the DOE.</p> <p>Commissioning Certificates for all 125 WTGs have been submitted to the DOE.</p> <p>KERC Tariff Order dated 11/12/2009 has been submitted to the DOE.</p> <p>Proposal/ Offer Letter from technology supplier has been submitted to the DOE</p>	<p>Enercon (India) Limited dated 01/07/2011. The document is found acceptable.</p> <p>CL 4 is closed.</p>
<p>CL5 Validation team was unable to verify the name of the newspapers and the date of publishing this advertisement from the document submitted. PP is requested to submitted the document with date and name.</p>	<p>E.1.1</p>	<p>The advertisement inviting Stakeholders for the meeting was published in English in "Times of India" and in vernacular language in "Karnataka Daily" on 24/05/2012. Copies of both the newspapers with clearly visible date and name have been submitted to the DOE.</p>	<p>PP has submitted the copies of newspapers; and the name and date mentioned is consistent with that of the PDD. Hence accepted. CL is closed.</p>

TABLE 4 FORWARD ACTION REQUEST

Forward action request	Reference to Table 2	Response by project participants Validation Conclusion
FAR 1		



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Reghu Raghavan Nair Kumar

è qualificato come¹:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP
VCS-TEC, VCS-VAL, VCS-VER, VCS-TL
GS-TEC, GS-VAL, GS-VER, GS-TL
SCS-TEC, SCS-VAL, SCS-VER, SCS-TL
JI-TEC

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 5.1, 6.1, 11.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation from fossil fuel and biomass including thermal electricity from solar	1
1.2	Energy generation from renewable energy sources	1
4.3	Iron and steel	4
4.4	Refinery	4
4.5	Rubber and Plastics	4
4.6	Electrical/electro technical products	4
4.7	Coke/coal/char-coal production	4
4.8	Pulp and paper production	4
5.1	Chemical process industries	5
6.1	Construction	6
11.1	Chemical process industries	11
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	31-08-2009	-
6	01-06-2012	Annual revision

Il Resp. QPT
Head of QPT

¹ Legend:

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TL: Team Leader
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DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

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RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Champok Buragohain

è qualificato come¹:
is qualified as:

CDM/VCS/GS/JI/SCS-TEC, CDM-VAL

per le seguenti aree tecniche:
for the following technical areas:

1.2, 2.1, 13.2, 15.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable energy sources	1
2.1	Electricity distribution	2
13.2	Animal Waste Management	13
15.2	Animal Waste Management	15

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in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19-01-2011	-
4	01-06-2012	Annual revision

Il Resp. QPT
Head of QPT

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RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Mathew Vijay

è qualificato come¹:
is qualified as:

CDM-TEC, VCS-TEC, JI-TEC, GS-TEC, SCS-TEC,
CDM-VAL, VCS-VAL

per le seguenti aree tecniche:
for the following technical areas:

1.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable Energy sources	1

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	02/08/2012	-

Il Resp. QPT
Head of QPT

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RINA

**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Karthika Varma

è qualificato come¹:
is qualified as:

CDM-FIN-EXP

per le seguenti aree tecniche:
for the following technical areas:

-

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
-	-	-

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	20-10-2010	-
2	01-06-2012	Annual revision

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Head of QPT

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CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rekha Menon

è qualificato come¹:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP,
VCS-TEC, VCS-VAL, VCS-VER, VCS-TL,
GS-TEC, GS-VAL, GS-VER, GS-TL,
SCS-TEC, SCS-VAL, SCS-VER, SCS-TL
JI-TEC

per le seguenti aree tecniche:
for the following technical areas:

1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable energy sources	1
13.1	Waste Handling and Disposal	13

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REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
7	01-06-2012	Annual revision

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Head of QPT

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RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rita Valoroso

è qualificato come1:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL, CDM-FIN-EXP
VCS-TEC, VCS-VAL, VCS-VER, VCS-TL
GS-TEC, GS-VAL, GS-VER, GS-TL
SCS-TEC, SCS-VAL, SCS-VER, SCS-TL
JI-TEC

per le seguenti aree tecniche:
for the following technical areas:

1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable Energy sources	1
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Divisione Certificazione.
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REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	18-01-10	-
6	13-07-12	Annual revision

Il Resp. QPT
Head of QPT

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RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Wing Yu Tong

è qualificato come¹:
is qualified as:

CDM-TEC, VCS-TEC, GS-TEC, SCS-TEC, JI-TEC,
VCS-VAL

per le seguenti aree tecniche:
for the following technical areas:

1.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable Energy sources	1

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	04-12-2010	-
5	26-07-2012	Annual revision

Il Resp. QPT
Head of QPT

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TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

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